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FINANCIAL RESULTS OF ARGENTINE RAILWAYS IN 1939-1940, p. 4
NORTON FITZWARREN AND WEMBLEY ACCIDENT REPORTS, pp. 19 & 20

THE
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A Journal of Management, Engineering and Operation
INCORPORATING
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An index to the seventy-third volume of THE RAILWAY GAZETTE *covering the issues from July 5 to December 27, 1940, has been prepared, and is now available free of charge on application to the Publisher*

DIESEL RAILWAY TRACTION SUPPLEMENT

The January issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.*

DISPATCH OF "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 of 1940

The Entry of 1941

THE New Year opens with a general realisation that the war is about to enter upon a decisive phase and with a grim determination on the part of all sections of the people willingly to take every measure and to shoulder any sacrifice necessary to ensure a victorious conclusion. In striking contrast to 12 months ago, when for many the war still seemed a little remote, there can now be few citizens and no industry of this country remaining untouched by it. In the current year greater calls will be made upon our manpower and industries than ever before. The great task which the railways have performed during past months, often in the face of intensive difficulties of operation arising not only from enemy action but also from the vastly increased carriage of wartime traffic of every kind, has provided striking vindication of the claim, which in peacetime was sometimes disputed, that the railways remain as essential as ever in economic mass movement of goods and passengers. This year the demands made on this great system undoubtedly will be increased even further and at present there is no indication that railway difficulties will be substantially ameliorated. No matter how great the task, there is no question that the railways will succeed in meeting the calls made on them. Their achievements in past months have earned in high quarters warm commendation which will provide encouragement and stimulus in the future. The circumstances of the times are not conducive to the cheerful greetings customarily associated with the opening of a New Year, but the quiet confidence which is apparent and the many expressions of goodwill we have received from readers and advertisers bodes well for the future. In thanking all those who have wished us well and in heartily reciprocating the sentiments so warmly expressed we can sincerely look forward to happier and less strenuous days when the troubles now besetting Great Britain and the Empire will have been overcome.

* * * *

Sir Follett Holt

The decision of Sir Follett Holt to vacate the chairmanships of the Buenos Ayres Great Southern and Western Railway Companies, already recorded in THE RAILWAY GAZETTE, has occasioned widespread regret. In making known his decision, so far as it affected the B.A.G.S.R., at the general meeting of that company, Sir Follett Holt pointed out that he had reached in years three-quarters of a century and felt it his duty to relinquish, in favour of a younger man, the heavy tasks falling to the Chairman. Keen regret was apparent among stockholders at the meeting; Mr. Barnabas Russell, who has for a long time pressed his view that an age limit should be applied to railway directors and chairmen, immediately voiced his opinion that the company would be the loser. It is satisfactory, however, to note that Sir Follett Holt's great experience and the wise judgment he has so often displayed will continue to be at the disposal of South American railway circles. Few men have achieved such distinction in Anglo-Argentine railway affairs as Sir Follett Holt, and few have done so much for the cause of Anglo-Argentine friendship. A practical railwayman of wide experience, gained in the many years he spent in Argentina on railway work, he was endowed with a comprehensive knowledge of that country and a keen appreciation of local needs and conditions. In recent years his responsibilities as a director of many of the most progressive companies trading in Argentina has necessarily resulted in his spending less time in that country than formerly, but he has never lost his intimate touch with it.

* * * *

Sir Harley H. Dalrymple-Hay

The year 1940 marked the death of two of the pioneers of the London underground railway system: first, Mr. P. V. McMahon, one-time Chief Engineer of the City & South London Railway, and now Sir Harley Hugh Dalrymple-Hay, who died on December 17 in his eightieth year. Dalrymple-Hay was trained on the Midland Railway, but shortly after the termination of his pupilage he joined the London & South Western Railway, and in 1894 was appointed a resident engineer on the associated Waterloo & City tube, powers for which were obtained in 1893. From that time onwards his

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career was bound up continuously with tube railways. The hooded shield and clay pocket system of tunnelling were devised by him as improvements on Galbraith's original shield. Later, he was connected with the construction of the early sections of the Bakerloo, the Hampstead, and the Piccadilly tubes, but from 1907 he acted as an independent consultant, and in that capacity he supervised much of the work of the Post Office underground line in London, and the extensive scheme of station reconstruction and track realignment begun shortly after the last war on the London Underground railways. He had been engaged as a consulting engineer to London Transport on some of the major works in connection with the great improvement scheme which was in progress at the time the present war broke out. His name was known also in India, for in 1921 he prepared a report on a subway system for Calcutta, and later had charge of the construction of the cable tunnel under the River Hooghly. But, despite these and other miscellaneous works, the London tube system was his *métier*, and no man had a longer or more important connection with the railway division of what is now the London Passenger Transport Board.

* * * *

Tax Relief for War Industries

Many of the most important industries of the country—perhaps particularly those which in time of peace contribute most largely to our export trade—will benefit from the tax concession foreshadowed by the Chancellor of the Exchequer in the House of Commons on December 19. Sir Kingsley Wood anticipated his next Budget statement by revealing that he would then provide all traders with an allowance for income tax and National Defence Contribution purposes in respect of buildings, plant, and machinery which had been erected to further the war effort and which proved redundant when peace returned. The allowance, which will be widely welcome in industry and which will go some way towards meeting the exceptional circumstances arising from a necessity for wartime expansions coupled with the impracticability under an Excess Profits Tax of 100 per cent. of making due provision for subsequent amortisation, will be measured by the exceptional depreciation in so far as it is borne by the trader. Like the existing E.P.T. allowance, it will be applicable to buildings, plant, and machinery provided after January 1, 1937, and will be given from the same date as that allowance. This extension to income tax and N.D.C. of the existing E.P.T. allowance will ensure that any loss which a trading concern may incur from erecting new factories that are necessary for the war effort, but may not be required at the conclusion of hostilities, will be allowed for in the taxation of the profits of the business. Sir Kingsley Wood made it clear in his statement to Parliament that the concession he announced will be available to all traders whether or not they are liable to Excess Profits Tax.

* * * *

Railway Wagons and Coal Traffic

The controversy which has been raging in certain sections of the press, and which has been ventilated in the House of Commons by means of Questions to the Minister of Transport and the Secretary for Mines, on the movement of coal from pits to the consumers and the availability of railway wagons for the purpose has, perhaps naturally, led to the suggestion that the position might be eased if more wagons were to be built. Superficially, of course, it would seem that the more wagons there were in existence the greater the amount of coal that could be carried, but in point of fact there is no good reason to suppose that this deduction is as logical as it would appear. Even if it were decided to embark upon a large-scale wagon building programme it is very doubtful whether this would be in the national interest. Obviously it would call for the earmarking of large amounts of steel, which would have to be diverted from other essential needs, including export for foreign exchange, a vital factor at this juncture. Nor can it be argued that the present system under which all privately-owned wagons—except those designed for special purposes—are pooled, has not resulted in the placing at the disposal of the railways of a greatly augmented number of wagons as compared with peacetime. In any event the building of wagons in present circumstances would necessarily take considerable time which could ill be afforded. The urgent need of the moment is not for more wagons, but for much greater speed in unloading the vehicles already in use and turning them back into useful service. Demurrage charges are imposed merely as a deterrent. The railway companies do not require them as a source of revenue. The use of coal wagons for storage is, of course, against the national interests.

* * * *

Pullman Car Company

As was to be expected under war conditions, there was a sharp decline in the gross receipts of the Pullman Car Co. Ltd. for the year ended September 30 last, as compared with the previous 12 months; at £130,723 they went against £243,956. On the other hand, working expenses declined from £201,576 to £82,218; net receipts therefore rose from £42,380 to £48,505. The final profit for the year was £1,143 which, with the balance brought forward of £517, gave £1,660 which is carried forward. The decline in passenger receipts was due solely to the war and the consequent reduction of services. There is about 20 per cent. of the company's cars in service and these operate on the Southern Railway only. The directors state that a settlement has been reached with the railway companies as to compensation for loss of services and receipts. A sum not exceeding £55,000 a year and dating from the outbreak of war is to be paid to the company, out of which it will have to meet any losses in working. When payment has been received it is the intention of the directors, after making due provision for the depreciation of rolling stock, to announce the payment of 2 per cent. less tax, on the 5 per cent. cumulative income stock on account of arrears of interest.

* * * *

An Unaccountable Lapse

A summary of Colonel Mount's report on the accident at Norton Fitzwarren, G.W.R., on November 4, 1940, appears on page 19. To use his own words, " the sole cause was an unaccountable lapse," on the part of an experienced driver bearing an excellent record. The unfortunate man believed his train to be on the down main line—which it usually followed at this point—and read the down main signals, lowered for another train. He passed two stop signals against him and became derailed at the down relief catchpoints with serious results, 27 lives being lost. The evidence convinced Colonel Mount that the driver's memory had become confused, general strain and anxiety—his house had been damaged in an air raid—contributing to his breakdown. He thought he saw a signal lowered to go from down relief to down main, which clearly never occurred, and evidently cancelled an A.T.C. warning and continued to observe the wrong signals. This warning he believed he had heard much further back, where, there is little doubt, he correctly received the " all clear " bell. As the report says, " the issue is largely psychological." The case is one of those where no satisfactory explanation of a man's actions can be reached.

* * * *

Should Drivers be Warned of Change of Route?

Prominent among the interesting issues raised by this accident is the suggestion, always heard when a driver blunders in this way, that some verbal or written warning should be given to him when his train is not to follow its normal route. This is the regular practice on some railways abroad—in Germany, for example—but in our opinion there are no good grounds for believing that it makes for greater safety than relying on the signals for notifying change of route, quite simply effected with the British route indicating aspects. We have studied the causes of a number of accidents in other countries, and have found that several serious derailments have occurred when a train has been re-routed and the warning forgotten to be given. The driver has then used its non-receipt as an excuse for not realising the condition of the signals in time. The rules, it is true, provide for signals being kept " on " if no warning has been given, but here again there have been cases of signalmen being

told it has been given, when it has not. The most disquieting feature of the Norton Fitzwarren accident is the cancelling of the A.T.C. warning and the reading of wrong signals thereafter, about as dangerous an error as can possibly occur.

* * * *

The Luggage Barrow at Wembley

A summary of Major G. R. S. Wilson's report on the accident at Wembley, L.M.S.R., on October 12, when an up Liverpool express ran into a luggage barrow, with serious consequences, appears on page 19. Had there been no points and crossing at the south end of the station the train might have been pulled up without much harm. The unfortunate driver, who with his fireman, was killed, was evidently doing his best to stop but can hardly have seen the barrow until the last moment, if indeed he ever knew what he struck. Major Wilson finds no real fault with anyone. The men handling the barrow were doing their best to deal with the traffic expeditiously, and although the load at the moment was too near the limits of their physical capacity, none of them being particularly robust, the foreman and relief stationmaster thought they should have been able to manage it. A trial, however, led Major Wilson to disagree with them; the men often slipped on the platform ramp with such loads and had to return and make a run at it. He points out the risk attending such work if constant care is not exercised, and recommends special steps to impress supervisory staff with the position. Expensive structural alterations, such as another luggage hoist, are not considered justified by the conditions at Wembley, but the roughening of ramp surfaces or provision of cross-bars is suggested.

* * * *

Time Lost on the Railways

Arguing from the particular to the general is a dangerously inaccurate method of reaching a conclusion, and yet it is one which still seems to enjoy widespread popularity. In fact, it would seem to be this average lack of the development of the logical faculty which enables totalitarian propaganda to achieve success by such methods as making five dissociated announcements, one of which is verifiable, on the correct assumption that many hearers will argue that if one statement is true, probably there is something in the others. Similar characteristics have marked recent controversy in the British daily press about time lost on the railways. Individual examples of slackness or error of judgment do not necessarily connote widespread railway mismanagement, and yet this seems to be the type of argument adopted by many complainants. On the other hand, the difficulties caused through reaction from blackout restrictions, and the temporary dislocation resulting from a bomb, can easily be used to cover faults for which they are in no way responsible.

* * * *

Indoor Fireworks

The Christmas season just past put the toy train in a less prominent position than usual in the toyshop windows. There were various examples of the higher-priced article to be seen, glossy and aloof amid Spitfires, Hurricanes, and other aircraft with less auspicious names, but the small steam locomotive of unknown prototype and incalculable habits took a back place, no doubt on account of its usually Continental origin. In days before incendiary bombs on the drawing room carpet were disposed of with nonchalance, these machines were justly execrated by the elder members of households for their habit of leaving a trail of burning methylated spirit behind and squirting a fine spray of heated oil before them. Sometimes the exertion of movement caused them suddenly to envelop themselves completely in flame, whereat there would be a call for volunteers to remove the fiery object and its accompanying aroma of scorching paint into the garden, where the leader of the disposal squad eased the agony of his burned fingers by vociferating and gesticulating like a dictator crossed in power-politics. Yet we lately heard an urchin in a toyshop reject a toy steam locomotive in favour of a double-barrel gun, perhaps with memories of another historic occasion when a choice similarly decided between guns and butter was highly commended. The youth of today seems content to let its fireworks be provided by the ingenious M. Molotoff.

The Year 1940 in Retrospect

THE year which has just closed was one of strenuous effort for the British railways, and some indication of this has been given week by week in our series of articles entitled " Transport Services and the War " so far as details may be revealed without danger to the successful prosecution of the war. The main railway characteristics of the year have been rapid changes in transport needs; fluctuating flows of traffics; increased demands to meet expanding industrial undertakings; altered hours of work; exceptionally severe weather; the evacuation from Dunkerque; and difficulties caused by the blackout and the air attack on Great Britain. At the beginning of the year, special trains for the conveyance of troops and equipment were running at the rate of 2,300 a month, and to meet requests from the Service Departments a further nine ambulance trains were turned out from railway workshops. Towards the end of January last it will be recalled that weather of exceptional severity was experienced; 1,500 miles of lines were blocked by snow, and scores of trains were snowed up; water troughs became solid blocks of ice; points became immovable; electric conductor rails were coated with ice; and hundreds of miles of telegraph and telephone wires were brought down. Some 300 snow ploughs were used to deal with snow drifts up to 15 ft. in depth; troops helped gangs of railwaymen to dig out trains; and thousands of gallons of milk and tons of essential food supplies normally sent by road were moved by special trains to snowbound towns and villages. Greatly increased and widespread demands resulted for coal supplies to replenish stocks consumed owing to the severe weather, and arrangements were made to run special coal trains daily. During a week in February a quarter of a million wagons of coal were worked, and, by working coal trains on Sundays and throughout the Easter holidays, 2,200 special coal trains had been operated up to the middle of June.

Lineside allotments covering 3,500 acres were cultivated by 70,000 railwaymen, and special trains at cheap fares were organised for parents and others to visit evacuated children and hospital patients. The arrival of troops from Empire countries required additional trains; on a single day 73 troop trains were run by one railway alone. Preparations were made for running extra passenger trains for the Whitsun holidays, but the invasion of Holland and Belgium created a situation which made it imperative that everyone should remain at work, and at 1 p.m. on Friday, May 10, the additional trains for Whitsuntide were cancelled, and normal weekend services were run. Goods depots and sidings were opened, and further special trains for workmen were introduced as seven-day working began in many factories and workshops. The tempo of transport increased. Further evacuation moves for schoolchildren from London and other cities were planned, and special trains were run for many unusual demands including the transport of evacuees from Holland, Belgium, and France, many of whom were unable to speak more than a few words of English. Aliens and prisoners of war were moved to concentration centres, materials for munition factories handled in increasing quantities, and livestock was moved from certain vulnerable areas. During six days early in June 360 trains, 1,300 buses, and 200 trams and trolleybuses, moved 111,000 children and their attendants out of London.

All previous efforts were eclipsed, however, by the special movements in connection with the evacuation of the B.E.F. from Dunkerque, when within the space of eight days 620 trains carrying 300,000 troops were run without prior knowledge of their arrival at seven ports in the South East of England. A pool of 186 trains was formed, and the whole of the movement directed entirely by telephone. At the busiest time 100 trains were worked in 24 hours. In addition, during the period of the evacuation the railways carried throughout the country 20,000,000 passengers and 6,000,000 tons of freight. After the collapse of France, and the resultant risk of German invasion of our shores, all grades of railwaymen responded in an overwhelming manner to the formation of Local Defence Volunteers, afterwards called the Home Guard. As a tribute to this response to the movement, the L.M.S.R. named a locomotive *Home Guard*, and the

Southern Railway Chairman enrolled as Volunteer No. 1. The railways were also busily engaged in co-operating to the fullest possible extent with the Defence Authorities. Large guns have been moved and protective works carried out. Hundreds of thousands of place names and signs at railway stations, warehouses, and signal boxes, as well as street direction signs, were obliterated. Later in the year it became permissible to restore small station signs.

Experience of severe air attacks was encountered by the railways in coastal areas in August, and from early in September the railways in the London area, in common with other undertakings, have suffered damage. To keep railway services running the railwaymen continued at work during air raids, and examples of gallantry and initiative by all ranks grew rapidly. Operating staffs of the main-line railways and London Transport arranged emergency services by railway and road, and even by river steamer, to carry the public to and from their work places when normal services were dislocated. The air raid protection arrangements made by the railways were fully justified, and railway engineering staffs unceasingly carried out work of repairing damage caused to the railways. One of the most outstanding features has been the speed with which the repair squads were on the scene immediately after a bomb exploded and the rapidity with which repairs were completed; a pictorial example is given on page 14. Information booths to give travellers immediate information of alternative services were introduced at important traffic centres, and extensive use was made of loud speakers at the principal railway stations. Additional accommodation provided for members of H.M. Forces using the railway stations included buffets, rest rooms, left luggage rooms, and toilet facilities. Despite three months of intensive aerial attacks, 416 restaurant and buffet cars were run daily on passenger trains, compared with 363 cars at the beginning of the year. In consequence of the blackout and night air raids, more railway working necessarily had to be accomplished in daylight hours, and appeals—not yet entirely successful—were made for the more rapid unloading of wagons.

Recognition of the outstanding work performed by those connected with the railway services, both at home and overseas, is afforded by the inclusion in the New Year Honours List of a number of names which, as will be seen from page 16, are familiar to our readers. Two of the most prominent recipients of honours are Mr. E. J. H. Lemon and Colonel A. H. L. Mount, each of whom becomes a Knight Bachelor. The programme of production planned by Mr. Lemon as Director-General of Aircraft Production not only involved the organisation of plant then in existence, but also the establishment of new factories as necessary links in the chain of output. It is noteworthy that the programme laid down fulfilled expectations and was realised in advance of the date originally planned. In the words of the Secretary of State for Air, thanking the L.M.S.R. for the loan of Mr. Lemon, it would be difficult to overestimate the value of his services to the nation. Colonel Mount's Indian Pacific Locomotive Report was a striking illustration of the manner in which the experience and knowledge gained in British railway practice is at the disposal of railway systems in all parts of the world for the solution of their problems.

* * * *

Results of Argentine Railways in 1939–40

ACCORDING to the statistics relating to the working results of the Argentine railways during the financial year ended June 30 last, issued by the Instituto de Estudios Económicos del Transporte, the global receipts of all the lines, both State and privately-owned, declined by $13,298,000 or 2·7 per cent., below those for 1938-39. This decrease in the aggregate earnings is mainly due to the heavy losses sustained by the foreign-owned lines, whose combined revenues were nearly 19,000,000 pesos, or 4·7 per cent., lower than in the previous year. On the other hand, the State railways' earnings showed an increase of $5,552,000, or 5·7 per cent., over those of 1938-39. Of the British-owned lines, the only company to show an improvement over the previous period was the Buenos Ayres Western Railway, which was higher by $1,536,000, or 3·9 per cent. All the other lines showed decreases, that on the Central Argentine amounting to $11,516,000, or over 10 per cent.; the Buenos Ayres Great Southern returns diminished by $399,000, or 0·3 per cent.; those of the Buenos Ayres Pacific by $3,775,000, or 5 per cent.; the Entre Rios by $964,000, or 6·9 per cent., and the Argentine North Eastern by $263,000, or 3 per cent.

The aggregate tonnage carried by all the railways showed a decline of 2,137,000 tons, or 4·9 per cent., the British-owned lines being lower by 488,000 tons, or 1·7 per cent., the aggregate decline in the case of all the foreign-owned railways amounting to 909,000 tons, or 2·6 per cent. In the case of the State railways the drop amounted to 1,228,000 tons, or 7·7 per cent. Goods receipts showed an aggregate decline of $10,232,000, or 2·9 per cent. The drop suffered by the British-owned companies under this head amounted to $10,075,000, or 4·2 per cent., the aggregate decrease for all the foreign-owned lines being $13,774,000, or 5·1 per cent. On the other hand, the State railways goods receipts were higher by $3,542,000, or 4·4 per cent.

The total number of passengers carried by all the lines was slightly higher by 294,000, or 0·2 per cent. Of this increase 100,000, or 0·1 per cent., related to the British-owned companies. In the aggregate, however, the number of passengers carried by all the foreign-owned railways was 404,000, or 0·3 per cent., less than in the previous period. In the case of the State railways there was an increase of 698,000, or 7·9 per cent. The State railways' passenger returns were nearly 2,000,000 pesos, or 15·9 per cent., higher than in the preceding financial period; but only two of the foreign-owned lines showed increases in their passenger revenues: the B.A.W.R., which improved its position to the extent of $448,000, or 4·7 per cent., and the Santa Fé Provincial Railway, which was $85,000, or 6·9 per cent., higher. All the other companies registered declines, that on the C.A.R. amounting to $1,488,000, or 5·5 per cent., and the B.A.G.S.R. dropped by $1,089,000, or 3·5 per cent.; the aggregate loss sustained by all the foreign-owned railways under this head was $2,273,000, or 2·7 per cent.

Under the heading of miscellaneous receipts, the aggregate decline on the year's working by all the lines amounted to $2,760,000, or 5·2 per cent. On only two of the foreign-owned lines were the returns under this head higher than in the previous period. These were the Compañia General de Ferro-carriles en la Provincia de Buenos Aires, which had an increase under this head of $395,000, or 27·9 per cent. and the Santa Fé Provincial line, which had one of $20,000, or 2·5 per cent. On the State lines the miscellaneous earnings were higher by $43,000, or 0·8 per cent. The appended tables give the comparative figures for the years 1938-39 and 1939-40 relating to the working results of all the State and privately-owned Argentine railways:—

Working Results for the Financial Year 1939-40, Compared with 1938-39

	1938-39	1939-40	Inc. or Dec.	Per-centage
Goods—				
Tons	44,012,000	41,875,000	— 2,137,000	— 4·9
Ton-km.	12,424,709,000	12,102,606,000	— 321,103,000	— 2·6
Passengers—				
Number	163,626,000	163,920,000	+ 294,000	+ 0·2
Pass.-km.	4,345,386,000	4,409,992,000	+ 64,606,000	+ 1·5
Receipts (pesos)				
Goods	350,875,000	340,643,000	— 10,232,000	— 2·9
Passengers	97,342,000	97,036,000	— 306,000	— 0·3
Miscellaneous	53,235,000	50,475,000	— 2,760,000	— 5·2
Total receipts (pesos)	501,452,000	488,154,000	— 13,298,000	— 2·7

Gross Receipts for the Financial Year 1939-40, Compared with 1938-39

	1938-39	1939-40	Inc. or Dec. ($ paper)	Per-centage*
B.A.G.S. and subsidiary lines	120,447,000	120,048,000	— 399,000	— 0·3
Central Argentine	108,319,000	96,803,000	— 11,516,000	— 10·6
B.A. Pacific	75,178,000	71,403,000	— 3,775,000	— 5·0
B.A. Western	39,202,000	40,738,000	+ 1,536,000	+ 3·9
Entre Rios	13,972,000	13,008,000	— 964,000	— 6·9
Argentine N.E.	8,752,000	8,489,000	— 263,000	— 3·0
Total for British-owned companies	365,870,000	350,489,000	— 15,381,000	— 4·2
Santa Fé Prov.	15,915,000	14,780,000	— 1,135,000	— 7·1
Compania General	11,450,000	10,879,000	— 571,000	— 5·0
Buenos Aires Central	5,414,000	4,983,000	— 431,000	— 8·0
Ros. Pto. Belgrano	5,125,000	3,793,000	— 1,332,000	— 26·0
Total for private companies*	403,774,000	384,924,000	— 18,850,000	— 4·7
State Railways	97,678,000	103,230,000	+ 5,552,000	+ 5·7
Grand total for all railways	501,452,000	488,154,000	— 13,298,000	— 2·7

* It will be noticed that these final figures closely accord with the provisional estimates embodying estimated receipts for 1939-40 and provisional receipts for 1938-39 for all privately-owned railways, published at page 454 of our issue of November 1 last—Ed., *R.G.*

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Possible Locomotive Improvements

91 Bridge Lane, N.W.11
December 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As a reader of THE RAILWAY GAZETTE for many years I have enjoyed and profited by the able and useful editorial notes at the commencement of each issue which so succinctly deal with all matters of interest in the railway world.

In your issue of November 15, however, one of your note writers has in my opinion " slipped up " rather badly. I refer to the somewhat curious paragraph headed " Possible Locomotive Improvements." I think this calls for comment as it doesn't seem (to my mind) to harmonise with the customary good sense of your famous publication. For example, the non-advocacy of any further attempts at improvements in the thermal efficiency of the steam locomotive would seem to be at variance with the excellent references and descriptions published by you from time to time of anything and everything calculated to improve the efficiency of the steam locomotive or other form of motive power.

The sweeping statement at the commencement that it is " problematical whether steam will be considered as standard for passenger working after the war " makes me wonder if the writer of the note thinks the war will last for fifty years or more. Has he some new form of motive power in mind, hitherto not disclosed to the railway world ? Great and well known as are the claims and potentialities of the only other known systems, electrification and the diesel engine, I do not think that the most courageous railway expert would submit that one or other of these forms of traction offered the complete solution in every case for the economical working of passenger trains on the various gauges and for the multifarious characteristics that surround the operation of the world's railways.

Electrification has its definite sphere—an ever-growing one—but surely the greatest enthusiasts would hardly for instance consider it economical for the thousands of miles of single line all over the world, which have a limited train service ! Again, one could hardly imagine that diesels could be considered at this stage the universal solution for the really hard work of heavy passenger trains on many railways one can bring to mind. For shunting, shuttle services, and certain main-line work, there is an ever increasing field, but not for 500 to 1,000 ton trains which to split up would only increase operating costs. Thus it is that many administrations are already engaged in preparing designs for new passenger *steam* locomotives for early construction *after* the war.

To finish with what I call the " sweeping " statement, the recent utterance of the Assistant General Manager (Technical), previously Chief Mechanical Engineer, of the third largest railway in the world, at a meeting of the South African Institution of Engineers in August last is worthy of note as illustrating, if not the official views of the administration, at any rate those of a very experienced and eminent railway engineer, and they also serve to show the fundamental law underlying the selection of any type of motive power, which is that the general operating characteristics of the line and the economic condition of the country in which the railway operates must be taken into account :—

> " The steam locomotive is the backbone of rail transportation in South Africa. It will continue to be so for many years to come. These remarks are not meant to decry the value of other motive powers in spheres where, for special reasons, they may possess advantages.
>
> Electrification is justified in urban areas where traffic density is reasonably high and power costs reasonably low. From time to time certain protagonists have endeavoured to induce the public to believe that the steam locomotive had reached a point where it could not meet practically and economically future traffic conditions. The facts are to the contrary. The possibilities of increased efficiency and performance guarantee further progress.
>
> Modern steam locomotives of suitable design still offer the best investment, and particularly so from a capital cost basis. . . . The steam locomotive is the simplest and most flexible unit, and requires lower initial and maintenance costs than other motive power."

The statement that the steam locomotive cannot really be considered highly efficient as a traffic machine is a new one on me ! I should have thought that its marvellous elasticity in performance amply demonstrated by the various types of engines being used at the moment in this country on work for which they were never designed ; the fact that it can be worked and maintained in distant lands by, for example, the African native, often with the humblest of facilities ; that it can be indiscriminately pooled and yet put up excellent performances even in a state of serious disrepair ; that it can run continuous trips of over a thousand miles with long heavy passenger trains, crews being changed *en route* with almost unfailing regularity, to my mind renders the above statement misleading if not inaccurate.

As regards the low thermal efficiency of the steam locomotive referred to, much has been done and is still being done to improve this ; but it is not the vital factor or yardstick by which operating costs are measured and that is why, to my mind, the steam engine will still be here when the writers of the editorial referred to and indeed of these comments are no more.

The reference to fuel consumption is peculiar as in many cases the fuel bill is the largest single item in operating expenses so that a 25 per cent. reduction might easily turn the scales against an alternative form of traction, or at any rate would constitute a very important saving. One statement, however, I do agree with " that the locomotive is primarily a traffic machine " but the remainder of the sentence appears to ignore the performance, capacity, and availability of the modern steam locomotive.

The tractive force of the steam engine does not fall away at speed like the diesel for instance, and very high and sustained tractive force can be obtained for a cost considerably less than with other forms of motive power, and thus it is that heavy trains of 500 to 600 tons can be hauled over great distances and heavy grades at high average speeds economically and at comparatively low maintenance cost and with a reliability and availability which other forms of motive power can only surpass to any practical purpose in special cases. These heavy trains have mail vans, dining cars, and coaches for various classes of passenger traffic, and to split these trains into smaller sections would mean more crossing loops, to say nothing of increased staff, etc. Therefore, it is not so much the thermal efficiency which counts but the overall cost of hauling ton miles per train hour, and it must embrace the operating side as well as the locomotive side, and therefore, it seems to me, that the steam locomotive for passenger working is definitely a traffic machine and a highly efficient one.

Finally, the last two sentences appear to me somewhat axiomatic. I think everyone knows that roughly the bigger the mileage per locomotive the fewer the number of locomotives. But present-day mileages, particularly with modern steam locomotives, are not so bad ! Many passenger steam locomotives are running over 100,000 miles a year, there being an example of one completing 96,000 miles in half this period and 150,000 to 200,000 miles between heavy repairs is already an accomplished fact. Even more than this can be done when the same methodical attention and equipment is given by railways that is required and, often, demanded when other forms of motive power are employed. It must also be remembered that these mileages are run with big tonnages.

Finally, as regards the general efficiency of the steam locomotive as represented by availability ; the percentage of steam locomotives under or awaiting repairs on two of the largest railways in the British Commonwealth of Nations for a recent month was just under 5 per cent. In other words, over 95 per cent. of the engines were available for traffic. Large steam locomotives of between 2,000 and 3,000 h.p. are being repaired in three weeks ready for another 100,000

or 200,000 miles. I think from these two facts alone it must be conceded that the steam locomotive and particularly the passenger steam locomotive is a highly efficient traffic machine. Far off is the day when it will be entirely supplanted by other forms of motive power. In writing this criticism I have not taken any cognisance of the potentialities of the articulated steam engine which in application is only in its infancy.

From the foregoing, I think you may agree that the sweeping statement of your note writer is perhaps a little too sweeping! The last sentence of your note is brilliant and indisputable to my mind.

Yours faithfully,
W. CYRIL WILLIAMS

[Although we think the purely speculative tone of the note would be taken as such by most readers, we welcome Mr. Williams's letter as an excellent statement of the case for the steam locomotive.—ED., *R.G.*]

Railway Operating Efficiency

25, Green Lane, Northwood, Middlesex
December 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am much obliged to Mr. Sherrington for taking up the debate on this subject; it had been my hope that he would do so, for I much appreciate his work in the field of railway research. What I have asserted, I assert again, namely, that the official statistics of the Ministry of Transport show indisputably that railway operating is not efficient. Mr. Sherrington states the objects for which statistics are compiled, as follow:—

(i) To give some measurement of comparison over periods of time, or
(ii) Between different things.

He omits, however, the most important comparison of all, namely, comparison with a standard or ideal. Further, he alleges that no comparison enters into my arguments. Perhaps he will kindly read my paper again, and he will find that the comparisons upon which I base my judgment are with the standards which railway operating could reasonably be expected to attain.

Beyond stating that there has been little improvement in the railway operating results over a long period of years, I have not dealt with comparison in time. There would be no purpose in this; the basis of my criticism is with a standard, and the results year by year are so far below the standard that the improvements or decline they show from time to time are so slight as to be quite meaningless. Of course, they do rather show that nothing better is to be expected within the framework of present methods of operating, and to that extent help me.

As to the comparison "between different things," the following quotation from my paper to the Institute of Transport on October 14, 1940 (p. 170 of the Journal, vol. xxi, No. 6), provides a sufficient answer to Mr. Sherrington:—

> "It should be stated here most emphatically that the reason why railway operations are selected is because authentic statistics are available only for the railways. It is likely that similar weaknesses would be revealed in other carrying services organised on a large scale if figures were available. The criticisms in this paper are directed to the methods of operation not of any one form of transport, but on principle."

I have not quoted road statistics, because I am dealing with railway, not road, operations, and my arguments as to low efficiency would be equally applicable if there were no motor transport at all. In that case, however, while the low efficiency could not be disputed, it might be legitimate to say that it was inevitable. It is my claim, however, that there is today no justification for that low efficiency, and that it exists merely because of the failure to make the changes in railway operation which have become possible with the development of the motor vehicle.

Mr. Sherrington's remarks about the relative loading capacity of various types of transport are beside the point, which is that by the use of concentration centres served by road transport, operating can be so vastly improved in efficiency as to release locomotives, wagons, sheets, and manpower, and to improve the service to the public in such a way as to make an invaluable contribution to the war effort, and lay the foundation of a more efficient economic system in time of peace.

At the conclusion of the contribution made upon my paper by Mr. C. Bentham, formerly Member of the Council of the Institute of Transport, and an ex-railwayman of distinction, he uses the following words:—

> "... the framework requires modification in such a way as to put the railways under conditions equally favourable by comparison with the roads; giving them more nearly full loads with the possibility of maintaining a higher average speed, and possibly running at more frequent intervals. It is recognised by all that the railways cannot have the same ramifications as roads, *consequently they can be fully utilised only between larger centres, and are quite unsuitable for serving smaller places.*" (The italics are mine.)

This expresses my views cogently.

The best contribution which can be made to overhead costs is to reduce variable expenditure; this can be achieved by the development of railway operating practice on the lines I have indicated.

Yours faithfully,
FREDERICK SMITH

Co-Ordination of Transport Facilities

Escombe, Natal, South Africa
November 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with great interest Mr. Frederick Smith's letter and your editorial comment thereon in THE RAILWAY GAZETTE for October 4. Mr. Smith has stated a timeless problem in a new way. It cannot be advanced in too many forms. His analogy from mechanics is an apt one. It has always appeared to me to present what is required in the simplest possible form and I used it in my book "Railway and Seaport Freight Movement" of 1930. That puts the problem back ten years at least: it really goes back forty years, and beyond.

From our School of Economics days throughout our working lives we railwaymen have drilled into our consciousness the three standard fundamentals of railroading:—

(i) Load all the revenue possible into each wagon under its weight/bulk capacity.
(ii) Attach as many wagons as possible to each train.
(iii) Run the fewest possible number of trains.

There is, however, a proviso to items (ii) and (iii) which is sometimes overlooked; namely, that they should be consistent with the free running of locomotives and the maintenance of the highest possible "in transit" speed of transport. By in transit speed is meant the speed in miles an elapsed hour at which freight passes between its loading point and destination, inclusive of delays at stations and yards passed through *en route*.

There seems no doubt but that had the road motor lorry developed prior to the railway locomotive, there would have been fewer stations along double track railways and that the service of these by road motor vehicles operating over defined areas would have been highly developed. It will be recollected that Mr. Szlumper spoke of the possibilities of the system, even now, in his presidential address to the Institute of Transport.

Mr. Smith speaks of the ultimate importance of co-ordinating through transport by rail, road, inland waterway and coastal services. There can be no two minds about that. It has been my destiny to hold a series of administrative positions in which I was required to effect co-ordination between persons or groups which had no real desire to co-ordinate. While I was able in most cases to carry out my instructions with the aid of loyalty and goodwill, these indispensable ingredients cannot be legislated for.

I have formed the opinion, distilled from long experience, that co-ordination—such as that of transport facilities—which is considered desirable in the public interest, can only be positively effected either by shared financial gain or by statutory legislation, or a measure of both.

Were an archangel equipped with super persuasive powers to be sent from heaven to bring about a voluntary co-ordina-

tion of every form of transport in such a manner that the public could always consign by the cheapest and most direct route, I think he would fail and that his report would clamour for mundane legislation. Bearing in mind that there must be shared financial gain, it should be practicable to devise a system which would need a foundation only of legislation.

Mr. Smith proposes the closing of a certain number of railway stations and the serving of the remainder by road motor vehicles which would themselves comb the intermediate areas. From the viewpoint of the railway operating man, fewer stations with long runs between each would be an almost indecent Elysium. Your editorial states some snags. When transport men of the distinct experiences represented by Mr. Szlumper and Mr. Smith both see definite possibilities under a long-range view, it behoves the transport world to cast aside prejudice, at least.

The matter assumes a different aspect in regard to the railways of tropical dependencies, which are mostly single-track; the stations form the crossing places. I was appointed to the management of one of these railways during the trade depression of the early nineteen-thirties, when it was necessary daily to scrape the bottom of the pot in endeavour to reduce alarming annual railway deficits. One economy measure was the closing of some stations. Most railways in tropical dependencies did that. No operating inconvenience was experienced with the much reduced traffic then passing.

When, however, trade began to re-awaken and heavy tonnages to require railway haulage, I found that the real weakness of the railway operating position in terms of wagon turn-round and the economical use of motive power was the very low in-transit speed of transport between forwarding point and destination. An analysis showed that what we needed were still more crossing places for trains; not necessarily in the form of full-blown stations, but such as could readily be cut-in during the heavy export season and cut-out during the slack season of the year. Such additional crossing places judiciously sited along a single-line railway whose original stations were placed at trade centres rather than at the best train-crossing points, enable the average speed of trains through a section to approach more nearly to the maximum speed allowed; a very important matter on colonial railways where maximum speeds are themselves often painfully low.

The weight of trains naturally plays an important part. Overloaded locomotives which can only crawl up grade and whose drivers—usually natives—have to rush down the grades in order to keep time and thereby get into unmerited trouble, have no place in an orderly scheme to improve the average in transit speed of rail transport.

However, this strays from the point which I desire to make. It is my belief that a railway management which concentrates on improving the average in transit speed of freight transport, decimal point by decimal point, will not only benefit the railway by reducing wagon stock and eliminating the extravagant use of locomotive power; but that such a policy will itself indicate with some exactitude where and how the scope of transverse road motor lorry servicing of selected railway stations can and should be extended, and also where other forms of transport which touch the railway and/or its road partners offer clear and unmistakable opportunities for co-ordination.

Yours faithfully,

G. V. O. BULKELEY

Broad Gauge on the L. & S.W.R.

Bordyke, Burgess Hill, Sussex
December 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Articles and correspondence from time to time appear in your associated periodical, *The Railway Magazine*, but none so far as I can call to mind has cleared up the reason for the broad gauge being laid for eight miles east of Dorchester on the Southampton & Dorchester Railway, merged in the L. & S.W. Railway.

In the "battle of the gauges" the broad gauge Wilts & Somerset Railway (a subsidiary of the G.W.R.) agreed to lease the Southampton & Dorchester Railway, and it would have been either broad gauge or mixed gauge. In the S. & D.R. Act of 1845 a clause was inserted giving that railway running powers over the W. & S.R. (which had become the W.S. & Weymouth Railway), between Dorchester and Weymouth, whilst the S. & D. Railway agreed to provide a third rail for the broad gauge for eight miles from Dorchester towards Southampton.

The S. & D.R. was opened throughout as a single line in 1847; its Dorchester terminus was positioned with a view to a continuation of the line westward to Bridport. In the same year it sought powers to construct a line from Moreton to Weymouth, as there was no likelihood of the W.S. & Weymouth Railway being completed for several years, if at all. With a depleted railway library I am now unable to state if the Act was obtained, but the line was not constructed.

Nothing further was done to provide a railway to Weymouth till 1854, when the G.W.R. (which had taken over the Frome, Yeovil and Weymouth Railway, formed to complete the W.S. & W.R.) began to complete the line from Frome to Weymouth. Hence in its Act of 1854 the powers as to the broad gauge on the L. & S.W.R. for eight miles east of Dorchester, and for mixing the gauge on the G.W.R. between Dorchester and Weymouth were confirmed. The G.W.R. was opened to Weymouth on January 20, 1857.

The L. & S.W.R. line was still single for a considerable distance east of Dorchester, as was the G.W.R. between Frome and Dorchester, but was constructed as a double mixed-gauge line between Dorchester and Weymouth in view of the additional L. & S.W.R. traffic. As the L. & S.W.R. could provide only a single broad-gauge line over the eight miles east of Dorchester there was no need to provide platforms at its Dorchester station for two sets of rails. Later the line was doubled, and possibly the surroundings of the station, and the connecting spur to the G.W.R. being the property of that company, the reconstruction of the L. & S.W.R. station at Dorchester as a through station, save at an expense not considered commensurate with the advantage to be gained, together were responsible for the position that remains—the up trains backing into the terminal platform. A further reason may have been, that, consequent upon the heavy gradients between Weymouth and Dorchester, the trains possibly consisted of few carriages; and in the down direction the rear vehicles may have been left at Dorchester, and the up trains attached extra coaches behind at Dorchester which were already standing loaded at the terminal platform when the train from Weymouth backed in.

The terms of payment for the running powers by the L. & S.W.R. were unusual, *viz.* 60 per cent. of the gross receipts of the L. & S.W.R. traffic over the G.W.R. between Dorchester and Weymouth "calculated on the rates now chargeable on the L. & S.W.R. between London and Southampton, exclusive of the cost to them of conveying such traffic between Dorchester and Weymouth." Apparently the rates of carriage between London and Southampton were higher than on the L. & S.W.R. as a whole.

Surprise has been expressed that the G.W.R. should desire running powers over the eight miles of the L. & S.W.R. east of Dorchester. The official histories of the two companies concerned—G.W.R. and S.R.—offer no suggestion as to motive. The probable reason is that by constructing from the eastern limit of the eight miles a broad-gauge railway to Salisbury and on to the G.W.R. at Newbury, a broad-gauge line between Weymouth and London, shorter than either of the then existing routes, would result. The distance by the narrow-gauge L. & S.W. route, which was then *via* Wimborne, was 146 miles, by the G.W. broad-gauge, *via* Chippenham, 169 miles, whilst by the suggested route, allowing 65 miles for the new section (Moreton to Newbury), the length would be only 133 miles.

The feasibility of such a broad-gauge line was provided by the Gauge Act, 1846, which exempted from the narrow-gauge provisions, *inter alia* "any railway which is in its whole length southward of the Great Western Railway," as a Moreton—Newbury line would have been. In 1845 when the agreement as to running powers for eight miles east of Dorchester was made, the L. & S.W.R. had no line to Salisbury; the first *via* Eastleigh was not opened till March, 1847, the distance from London being 97¼ miles. Salisbury to London, *via* Newbury, would be about 80 miles.

Yours faithfully,

G. A. SEKON

PUBLICATIONS RECEIVED

Railway Signalling and Communications: Installation and Maintenance. London: The St. Margaret's Technical Press Limited, 33, Tothill Street, Westminster, S.W.1. 416 pp., 8¼ in. × 5¼ in., 342 drawings and diagrams, 52 photographic illustrations in the text and on plates. Bound in cloth. Price 8s.—The course of development in railway signalling and communication work during the last thirty years has been such that much wider knowledge is now required by maintenance staff than was formerly the case. Some railway managements have found it of considerable help to institute courses of lectures to assist their employees in acquiring it and to supplement the work of the ordinary technical schools, where railway signalling, as such, is practically never dealt with. Although several treatises intended for signal engineers have been published, there has for some time been a great want of a book written from the standpoint of the maintenance man. This the present work seeks to meet, and its text is based on the lectures given in the signalling schools of the L.N.E.R. (Southern Area), under the direction of Mr. A. E. Tattersall, the Signal & Telegraph Engineer, by himself and members of his technical staff.

The volume contains nineteen chapters, covering the fundamentals of electricity and magnetism, including alternating currents, the principal details of mechanical signalling fittings, interlocking, block and token instruments, batteries, relays, telegraphs and telephones, track circuit apparatus and calculations, pole line equipment, and many other items, with such instructions on their installation and maintenance as long experience has proved to be most useful in promoting efficient working. Modern developments, such as relay interlocking, received due attention and numbers of typical electric signalling circuits are explained and illustrated. The official Ministry of Transport Requirements are reproduced, with explanatory comment. The text is completed by no fewer than 342 specially prepared clear drawings and diagrams, with four pages of written circuit symbols and 52 photographs, illustrating a selection of signalling appliances. To keep the size of the work within certain limits it has been necessary to make a careful choice of subject matter, but almost all of the text is of general application and not limited to the practice of one railway. The book should prove a useful guide not only to maintenance men, for whom it is primarily intended, but to all students of signalling, while those who contemplate instituting their own instructional courses should find it very useful as a basis on which to develop lectures for themselves, enlarging and modifying the text at need to suit the requirements of their own line. The volume is completed by a good index.

THE SCRAP HEAP

WHY I CLING TO LIFE

(From a Correspondent)

I have been held up, held down, sand-bagged, walked on, sat upon, flattened out and squeezed by the Income Tax, the Beer Tax, the Spirits Tax, the Motor Tax, and by every Society, Organisation, and Club that the inventive mind of man can think of to extract what I may or may not possess—for the Red Cross, the Black Cross, the Ivory Cross, and the Double Cross and for every Hospital in town or country.

The Government has governed my business until I don't know who runs it.

I am inspected, suspected, examined, and re-examined, informed, required, and commended so that I don't know who I am, where I am, or why I am here at all.

All that I know is that I am supposed to be an inexhaustible supply of money for every need, desire, or hope of the human race and because I will not go out and beg, borrow, or steal money to give away, I am cussed, discussed, boycotted, talked to, talked about, lied to, lied about, held up, hung up, rung up, robbed, and damn near ruined.

The only reason why I am clinging to life at all is to see what the hell is going to happen next.

* * *

"PATRICK" THE GIANT

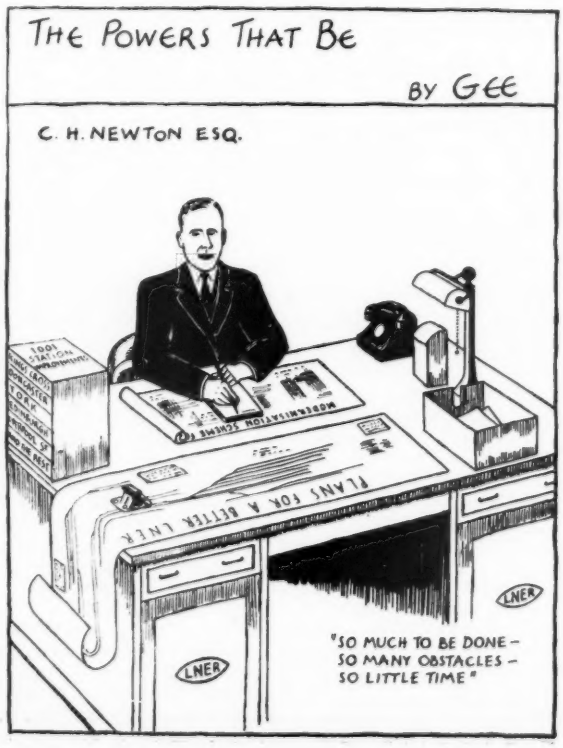
Patrick, claimed to be the fossilised specimen of an Irish giant, 8 ft. tall and weighing approximately 3 tons, for over 60 years has been the strangest piece of left luggage in the possession of the L.M.S.R. and its predecessors. It was a dispute between his two guardians who planned to tour the country with *Patrick* that led to the railway company being saddled with the giant, who became the subject of an action in Chancery. Although *Patrick* was examined by experts, they were unable to agree whether he was just a fake carved out of stone or the real thing. His remains have now been used to help fill a bomb crater.

* * *

Taxes paid by American railroads are very high. For every $1 paid to the shareholders in dividends, a sum of $2·82 is paid out in taxes at different kinds; railway taxation increased by 50 per cent. between 1935 and 1939.

* * *

The Scottish Motor Traction Co. Ltd. and its subsidiary companies have invested £50,000 during Glasgow War Weapons Week. All of the companies in this group are, of course, associated with the L.N.E.R. and L.M.S.R.



When the "Ballyhoo Review," the wartime staff production of H.Q.1 of the L.N.E.R., was suspended with the issue of No. 29 on May 7 last, owing to the urgent need for paper economy, its editor, Mr. George Dow, did not imagine that before the year was out it would be possible to revive this news bulletin. However, it was found that just sufficient paper could be spared for the production of No. 30 in the form of the "Ballyhoo Christmas Annual." This was issued to raise funds for the second L.N.E.R. Spitfire, and we gather that it succeeded in raising more than £5 for this cause. The frontispiece is of Mr. C. H. Newton, Chief General Manager, L.N.E.R., and this we reproduce alongside

OVERSEAS RAILWAY AFFAIRS

(*From our special correspondents*)

WESTERN AUSTRALIA

Fremantle-Midland Junction Reballasting

A work which has been in progress for the past two years and is now completed, is the reballasting of the Fremantle-Midland Junction section. This line, which traverses the main metropolitan suburban area, carries in addition to the ordinary suburban passenger and goods service, the whole of the traffic between the Eastern and Eastern Goldfields districts, and the port of Fremantle. As the reballasting has had to be carried out under traffic it was necessary to close down the work during the summer months when the harvest traffic was at its peak.

The section in question was originally ballasted with large-sized blue metal up to 3 and 4 in. throughout, and it had latterly been found impossible to fettle the road so as to remove the irregularities brought about by the use of such heavy material, which is suitable only for bottom ballast. In many places this ballast had worked down into the sand, and in others no more than 2 in. existed under the sleepers, thus giving an irregular bearing and resulting in difficulty in keeping top and alignment. To provide the necessary foundation for a better result in fettling, and to meet higher axle loads, arrangements were made to lift the road 3 in. with additional 1-in. ballast.

The section is 22 miles in length and the cost of the work was approximately £50,000. The work was carried out as an unemployment relief job, and provided employment at various stages for up to 90 men. A good deal of employment was also provided in the quarrying of the 40,000 odd tons of ballast used.

Midland Junction Workshops Extension

The need for additional space, as well as extra equipment at the Midland Junction workshops, to relieve acute and growing congestion and to permit of more economical working, has become increasingly evident in recent years. The shops were built in 1904 with main blocks 300 ft. long, and these were extended to 600 ft. in 1912, since which time no major additions have been made, although the activities of the workshops have increased considerably, particularly as regards the construction of new locomotives and carriage and wagon stock. One result of this has been that new machinery installed from time to time has had to be fitted in to the space available, with consequent cramping of the existing equipment.

With the placing of orders with the workshops for certain defence works, the necessity for increased accommodation has become correspondingly greater, and, to meet the position, approval has now been given to the building of an annexe at an estimated cost of £50,000, and work on the building is well in hand. The provision of this annexe, and some rearrangement of other sections to provide for better working, will greatly facilitate both normal railway and defence works, and at the conclusion of the war will be of great assistance in the carrying out of the rolling stock manufacturing policy of the department.

ARGENTINA

Railway Pension Fund

Although neither the Argentine Government nor Congress has so far made any move towards amending the law relating to the Railway Pension Fund, the precarious position of which was referred to in THE RAILWAY GAZETTE of December 20, the matter continues to be the subject of discussion in the press, and it is reported that the directors have submitted certain proposals to the Government with a view to placing the fund on a solvent basis. These proposals include (*a*) the raising of the employees' monthly contributions from 6 to 8 per cent.; (*b*) an increase in the contributions from the railway companies of from 8 to 12 per cent.; (*c*) the incorporation in the fund of the personnel of all railway unions, mutual aid and co-operative societies which are recognised by the Government and have a capital of not less than $100,000 paper; and (*d*) the repeal of article 27 authorising both the companies and the employees to reckon fractions over six months as one year for the purpose of computing the length of service and the establishment on a provisional basis of invalid pensions. Pending the discussion of these proposals by Congress, the fund authorities have requested the Government to take over the deficit for the year 1938-39, amounting to some 12,500,000 pesos, in accordance with article 8 of Law No. 10,650.

Suggested Increase in Companies' Contributions

One of the features of the foregoing proposals to which the companies have justly taken strong exception is that relating to an increase in their own contributions. In a note addressed to the Government, the companies point out that the present plight of the fund is entirely due to the defective manner in which the scheme was drawn up, and the unsoundness of its financial provisions which, it was predicted at the time, were bound sooner or later to land it in difficulties. For this, however, the railways are in no way to blame, and for this reason it is most unfair to suggest that they should be called on to make good its deficiencies, apart from the fact that, owing to their diminished resources, it is beyond their power to comply with such a demand. When it is remembered that the total sum owing to the fund by the companies is estimated at over 60,000,000 pesos, on the existing basis of 8 per cent. of their traffic receipts, the absurdity of increasing the rate to 12 per cent. requires no stressing.

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or 200,000 miles. I think from these two facts alone it must be conceded that the steam locomotive and particularly the passenger steam locomotive is a highly efficient traffic machine. Far off is the day when it will be entirely supplanted by other forms of motive power. In writing this criticism I have not taken any cognisance of the potentialities of the articulated steam engine which in application is only in its infancy.

From the foregoing, I think you may agree that the sweeping statement of your note writer is perhaps a little too sweeping! The last sentence of your note is brilliant and indisputable to my mind.

Yours faithfully,
W. CYRIL WILLIAMS

[Although we think the purely speculative tone of the note would be taken as such by most readers, we welcome Mr. Williams's letter as an excellent statement of the case for the steam locomotive.—ED., *R.G.*]

Railway Operating Efficiency

25, Green Lane, Northwood, Middlesex
December 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am much obliged to Mr. Sherrington for taking up the debate on this subject; it had been my hope that he would do so, for I much appreciate his work in the field of railway research. What I have asserted, I assert again, namely, that the official statistics of the Ministry of Transport show indisputably that railway operating is not efficient. Mr. Sherrington states the objects for which statistics are compiled, as follow:—

(i) To give some measurement of comparison over periods of time, or
(ii) Between different things.

He omits, however, the most important comparison of all, namely, comparison with a standard or ideal. Further, he alleges that no comparison enters into my arguments. Perhaps he will kindly read my paper again, and he will find that the comparisons upon which I base my judgment are with the standards which railway operating could reasonably be expected to attain.

Beyond stating that there has been little improvement in the railway operating results over a long period of years, I have not dealt with comparison in time. There would be no purpose in this; the basis of my criticism is with a standard, and the results year by year are so far below the standard that the improvements or decline they show from time to time are so slight as to be quite meaningless. Of course, they do rather show that nothing better is to be expected within the framework of present methods of operating, and to that extent help me.

As to the comparison "between different things," the following quotation from my paper to the Institute of Transport on October 14, 1940 (p. 170 of the Journal, vol. xxi, No. 6), provides a sufficient answer to Mr. Sherrington:—

> "It should be stated here most emphatically that the reason why railway operations are selected is because authentic statistics are available only for the railways. It is likely that similar weaknesses would be revealed in other carrying services organised on a large scale if figures were available. The criticisms in this paper are directed to the methods of operation not of any one form of transport, but on principle."

I have not quoted road statistics, because I am dealing with railway, not road, operations, and my arguments as to low efficiency would be equally applicable if there were no motor transport at all. In that case, however, while the low efficiency could not be disputed, it might be legitimate to say that it was inevitable. It is my claim, however, that there is today no justification for that low efficiency, and that it exists merely because of the failure to make the changes in railway operation which have become possible with the development of the motor vehicle.

Mr. Sherrington's remarks about the relative loading capacity of various types of transport are beside the point, which is that by the use of concentration centres served by road transport, operating can be so vastly improved in efficiency as to release locomotives, wagons, sheets, and manpower, and to improve the service to the public in such a way as to make an invaluable contribution to the war effort, and lay the foundation of a more efficient economic system in time of peace.

At the conclusion of the contribution made upon my paper by Mr. C. Bentham, formerly Member of the Council of the Institute of Transport, and an ex-railwayman of distinction, he uses the following words:—

> "... the framework requires modification in such a way as to put the railways under conditions equally favourable by comparison with the roads; giving them more nearly full loads with the possibility of maintaining a higher average speed, and possibly running at more frequent intervals. It is recognised by all that the railways cannot have the same ramifications as roads, *consequently they can be fully utilised only between larger centres, and are quite unsuitable for serving smaller places.*" (The italics are mine.)

This expresses my views cogently.

The best contribution which can be made to overhead costs is to reduce variable expenditure; this can be achieved by the development of railway operating practice on the lines I have indicated.

Yours faithfully,
FREDERICK SMITH

Co-Ordination of Transport Facilities

Escombe, Natal, South Africa
November 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with great interest Mr. Frederick Smith's letter and your editorial comment thereon in THE RAILWAY GAZETTE for October 4. Mr. Smith has stated a timeless problem in a new way. It cannot be advanced in too many forms. His analogy from mechanics is an apt one. It has always appeared to me to present what is required in the simplest possible form and I used it in my book "Railway and Seaport Freight Movement" of 1930. That puts the problem back ten years at least: it really goes back forty years, and beyond.

From our School of Economics days throughout our working lives we railwaymen have drilled into our consciousness the three standard fundamentals of railroading:—

(i) Load all the revenue possible into each wagon under its weight/bulk capacity.
(ii) Attach as many wagons as possible to each train.
(iii) Run the fewest possible number of trains.

There is, however, a proviso to items (ii) and (iii) which is sometimes overlooked; namely, that they should be consistent with the free running of locomotives and the maintenance of the highest possible "in transit" speed of transport. By in transit speed is meant the speed in miles an elapsed hour at which freight passes between its loading point and destination, inclusive of delays at stations and yards passed through *en route*.

There seems no doubt but that had the road motor lorry developed prior to the railway locomotive, there would have been fewer stations along double track railways and that the service of these by road motor vehicles operating over defined areas would have been highly developed. It will be recollected that Mr. Szlumper spoke of the possibilities of the system, even now, in his presidential address to the Institute of Transport.

Mr. Smith speaks of the ultimate importance of co-ordinating through transport by rail, road, inland waterway and coastal services. There can be no two minds about that. It has been my destiny to hold a series of administrative positions in which I was required to effect co-ordination between persons or groups which had no real desire to co-ordinate. While I was able in most cases to carry out my instructions with the aid of loyalty and goodwill, these indispensable ingredients cannot be legislated for.

I have formed the opinion, distilled from long experience, that co-ordination—such as that of transport facilities—which is considered desirable in the public interest, can only be positively effected either by shared financial gain or by statutory legislation, or a measure of both.

Were an archangel equipped with super persuasive powers to be sent from heaven to bring about a voluntary co-ordina-

tion of every form of transport in such a manner that the public could always consign by the cheapest and most direct route, I think he would fail and that his report would clamour for mundane legislation. Bearing in mind that there must be shared financial gain, it should be practicable to devise a system which would need a foundation only of legislation.

Mr. Smith proposes the closing of a certain number of railway stations and the serving of the remainder by road motor vehicles which would themselves comb the intermediate areas. From the viewpoint of the railway operating man, fewer stations with long runs between each would be an almost indecent Elysium. Your editorial states some snags. When transport men of the distinct experiences represented by Mr. Szlumper and Mr. Smith both see definite possibilities under a long-range view, it behoves the transport world to cast aside prejudice, at least.

The matter assumes a different aspect in regard to the railways of tropical dependencies, which are mostly single-track; the stations form the crossing places. I was appointed to the management of one of these railways during the trade depression of the early nineteen-thirties, when it was necessary daily to scrape the bottom of the pot in endeavour to reduce alarming annual railway deficits. One economy measure was the closing of some stations. Most railways in tropical dependencies did that. No operating inconvenience was experienced with the much reduced traffic then passing.

When, however, trade began to re-awaken and heavy tonnages to require railway haulage, I found that the real weakness of the railway operating position in terms of wagon turn-round and the economical use of motive power was the very low in-transit speed of transport between forwarding point and destination. An analysis showed that what we needed were still more crossing places for trains; not necessarily in the form of full-blown stations, but such as could readily be cut-in during the heavy export season and cut-out during the slack season of the year. Such additional crossing places judiciously sited along a single-line railway whose original stations were placed at trade centres rather than at the best train-crossing points, enable the average speed of trains through a section to approach more nearly to the maximum speed allowed; a very important matter on colonial railways where maximum speeds are themselves often painfully low.

The weight of trains naturally plays an important part. Overloaded locomotives which can only crawl up grade and whose drivers—usually natives—have to rush down the grades in order to keep time and thereby get into unmerited trouble, have no place in an orderly scheme to improve the average in transit speed of rail transport.

However, this strays from the point which I desire to make. It is my belief that a railway management which concentrates on improving the average in transit speed of freight transport, decimal point by decimal point, will not only benefit the railway by reducing wagon stock and eliminating the extravagant use of locomotive power; but that such a policy will itself indicate with some exactitude where and how the scope of transverse road motor lorry servicing of selected railway stations can and should be extended, and also where other forms of transport which touch the railway and/or its road partners offer clear and unmistakable opportunities for co-ordination.

Yours faithfully,

G. V. O. BULKELEY

Broad Gauge on the L. & S.W.R.

Bordyke, Burgess Hill, Sussex
December 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Articles and correspondence from time to time appear in your associated periodical, *The Railway Magazine*, but none so far as I can call to mind has cleared up the reason for the broad gauge being laid for eight miles east of Dorchester on the Southampton & Dorchester Railway, merged in the L. & S.W. Railway.

In the "battle of the gauges" the broad gauge Wilts & Somerset Railway (a subsidiary of the G.W.R.) agreed to lease the Southampton & Dorchester Railway, and it would have been either broad gauge or mixed gauge. In the S. & D.R. Act of 1845 a clause was inserted giving that railway running powers over the W. & S.R. (which had become the W.S. & Weymouth Railway), between Dorchester and Weymouth, whilst the S. & D. Railway agreed to provide a third rail for the broad gauge for eight miles from Dorchester towards Southampton.

The S. & D.R. was opened throughout as a single line in 1847; its Dorchester terminus was positioned with a view to a continuation of the line westward to Bridport. In the same year it sought powers to construct a line from Moreton to Weymouth, as there was no likelihood of the W.S. & Weymouth Railway being completed for several years, if at all. With a depleted railway library I am now unable to state if the Act was obtained, but the line was not constructed.

Nothing further was done to provide a railway to Weymouth till 1854, when the G.W.R. (which had taken over the Frome, Yeovil and Weymouth Railway, formed to complete the W.S. & W.R.) began to complete the line from Frome to Weymouth. Hence in its Act of 1854 the powers as to the broad gauge on the L. & S.W.R. for eight miles east of Dorchester, and for mixing the gauge on the G.W.R. between Dorchester and Weymouth were confirmed. The G.W.R. was opened to Weymouth on January 20, 1857.

The L. & S.W.R. line was still single for a considerable distance east of Dorchester, as was the G.W.R. between Frome and Dorchester, but was constructed as a double mixed-gauge line between Dorchester and Weymouth in view of the additional L. & S.W.R. traffic. As the L. & S.W.R. could provide only a single broad-gauge line over the eight miles east of Dorchester there was no need to provide platforms at its Dorchester station for two sets of rails. Later the line was doubled, and possibly the surroundings of the station, and the connecting spur to the G.W.R. being the property of that company, the reconstruction of the L. & S.W.R. station at Dorchester as a through station, save at an expense not considered commensurate with the advantage to be gained, together were responsible for the position that remains—the up trains backing into the terminal platform. A further reason may have been, that, consequent upon the heavy gradients between Weymouth and Dorchester, the trains possibly consisted of few carriages; and in the down direction the rear vehicles may have been left at Dorchester, and the up trains attached extra coaches behind at Dorchester which were already standing loaded at the terminal platform when the train from Weymouth backed in.

The terms of payment for the running powers by the L. & S.W.R. were unusual, *viz.* 60 per cent. of the gross receipts of the L. & S.W.R. traffic over the G.W.R. between Dorchester and Weymouth "calculated on the rates now chargeable on the L. & S.W.R. between London and Southampton, exclusive of the cost to them of conveying such traffic between Dorchester and Weymouth." Apparently the rates of carriage between London and Southampton were higher than on the L. & S.W.R. as a whole.

Surprise has been expressed that the G.W.R. should desire running powers over the eight miles of the L. & S.W.R. east of Dorchester. The official histories of the two companies concerned—G.W.R. and S.R.—offer no suggestion as to motive. The probable reason is that by constructing from the eastern limit of the eight miles a broad-gauge railway to Salisbury and on to the G.W.R. at Newbury, a broad-gauge line between Weymouth and London, shorter than either of the then existing routes, would result. The distance by the narrow-gauge L. & S.W. route, which was then *via* Wimborne, was 146 miles, by the G.W. broad-gauge, *via* Chippenham, 169 miles, whilst by the suggested route, allowing 65 miles for the new section (Moreton to Newbury), the length would be only 133 miles.

The feasibility of such a broad-gauge line was provided by the Gauge Act, 1846, which exempted from the narrow-gauge provisions, *inter alia* "any railway which is in its whole length southward of the Great Western Railway," as a Moreton—Newbury line would have been. In 1845 when the agreement as to running powers for eight miles east of Dorchester was made, the L. & S.W.R. had no line to Salisbury; the first *via* Eastleigh was not opened till March, 1847, the distance from London being 97¼ miles. Salisbury to London, *via* Newbury, would be about 80 miles.

Yours faithfully,

G. A. SEKON

PUBLICATIONS RECEIVED

Railway Signalling and Communications: Installation and Maintenance. London: The St. Margaret's Technical Press Limited, 33, Tothill Street, Westminster, S.W.1. 416 pp., 8¼ in. × 5¼ in., 342 drawings and diagrams, 52 photographic illustrations in the text and on plates. Bound in cloth. Price 8s.—The course of development in railway signalling and communication work during the last thirty years has been such that much wider knowledge is now required by maintenance staff than was formerly the case. Some railway managements have found it of considerable help to institute courses of lectures to assist their employees in acquiring it and to supplement the work of the ordinary technical schools, where railway signalling, as such, is practically never dealt with. Although several treatises intended for signal engineers have been published, there has for some time been a great want of a book written from the standpoint of the maintenance man. This the present work seeks to meet, and its text is based on the lectures given in the signalling schools of the L.N.E.R. (Southern Area), under the direction of Mr. A. E. Tattersall, the Signal & Telegraph Engineer, by himself and members of his technical staff.

The volume contains nineteen chapters, covering the fundamentals of electricity and magnetism, including alternating currents, the principal details of mechanical signalling fittings, interlocking, block and token instruments, batteries, relays, telegraphs and telephones, track circuit apparatus and calculations, pole line equipment, and many other items, with such instructions on their installation and maintenance as long experience has proved to be most useful in promoting efficient working. Modern developments, such as relay interlocking, received due attention and numbers of typical electric signalling circuits are explained and illustrated. The official Ministry of Transport Requirements are reproduced, with explanatory comment. The text is completed by no fewer than 342 specially prepared clear drawings and diagrams, with four pages of written circuit symbols and 52 photographs, illustrating a selection of signalling appliances. To keep the size of the work within certain limits it has been necessary to make a careful choice of subject matter, but almost all of the text is of general application and not limited to the practice of one railway. The book should prove a useful guide not only to maintenance men, for whom it is primarily intended, but to all students of signalling, while those who contemplate instituting their own instructional courses should find it very useful as a basis on which to develop lectures for themselves, enlarging and modifying the text at need to suit the requirements of their own line. The volume is completed by a good index.

THE SCRAP HEAP

WHY I CLING TO LIFE

(From a Correspondent)

I have been held up, held down, sand-bagged, walked on, sat upon, flattened out and squeezed by the Income Tax, the Beer Tax, the Spirits Tax, the Motor Tax, and by every Society, Organisation, and Club that the inventive mind of man can think of to extract what I may or may not possess—for the Red Cross, the Black Cross, the Ivory Cross, and the Double Cross and for every Hospital in town or country.

The Government has governed my business until I don't know who runs it.

I am inspected, suspected, examined, and re-examined, informed, required, and commended so that I don't know who I am, where I am, or why I am here at all.

All that I know is that I am supposed to be an inexhaustible supply of money for every need, desire, or hope of the human race and because I will not go out and beg, borrow, or steal money to give away, I am cussed, discussed, boycotted, talked to, talked about, lied to, lied about, held up, hung up, rung up, robbed, and damn near ruined.

The only reason why I am clinging to life at all is to see what the hell is going to happen next.

* * *

"PATRICK" THE GIANT

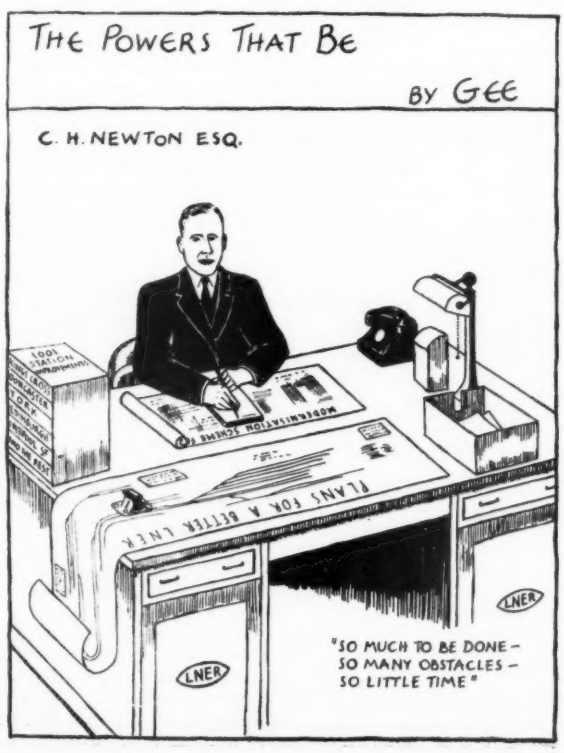
Patrick, claimed to be the fossilised specimen of an Irish giant, 8 ft. tall and weighing approximately 3 tons, for over 60 years has been the strangest piece of left luggage in the possession of the L.M.S.R. and its predecessors. It was a dispute between his two guardians who planned to tour the country with *Patrick* that led to the railway company being saddled with the giant, who became the subject of an action in Chancery. Although *Patrick* was examined by experts, they were unable to agree whether he was just a fake carved out of stone or the real thing. His remains have now been used to help fill a bomb crater.

* * *

Taxes paid by American railroads are very high. For every $1 paid to the shareholders in dividends, a sum of $2·82 is paid out in taxes at different kinds; railway taxation increased by 50 per cent. between 1935 and 1939.

* * *

The Scottish Motor Traction Co. Ltd. and its subsidiary companies have invested £50,000 during Glasgow War Weapons Week. All of the companies in this group are, of course, associated with the L.N.E.R. and L.M.S.R.



When the "Ballyhoo Review," the wartime staff production of H.Q.1 of the L.N.E.R., was suspended with the issue of No. 29 on May 7 last, owing to the urgent need for paper economy, its editor, Mr. George Dow, did not imagine that before the year was out it would be possible to revive this news bulletin. However, it was found that just sufficient paper could be spared for the production of No. 30 in the form of the "Ballyhoo Christmas Annual." This was issued to raise funds for the second L.N.E.R. Spitfire, and we gather that it succeeded in raising more than £5 for this cause. The frontispiece is of Mr. C. H. Newton, Chief General Manager, L.N.E.R., and this we reproduce alongside

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

WESTERN AUSTRALIA

Fremantle-Midland Junction Reballasting

A work which has been in progress for the past two years and is now completed, is the reballasting of the Fremantle-Midland Junction section. This line, which traverses the main metropolitan suburban area, carries in addition to the ordinary suburban passenger and goods service, the whole of the traffic between the Eastern and Eastern Goldfields districts, and the port of Fremantle. As the reballasting has had to be carried out under traffic it was necessary to close down the work during the summer months when the harvest traffic was at its peak.

The section in question was originally ballasted with large-sized blue metal up to 3 and 4 in. throughout, and it had latterly been found impossible to fettle the road so as to remove the irregularities brought about by the use of such heavy material, which is suitable only for bottom ballast. In many places this ballast had worked down into the sand, and in others no more than 2 in. existed under the sleepers, thus giving an irregular bearing and resulting in difficulty in keeping top and alignment. To provide the necessary foundation for a better result in fettling, and to meet higher axle loads, arrangements were made to lift the road 3 in. with additional 1-in. ballast.

The section is 22 miles in length and the cost of the work was approximately £50,000. The work was carried out as an unemployment relief job, and provided employment at various stages for up to 90 men. A good deal of employment was also provided in the quarrying of the 40,000 odd tons of ballast used.

Midland Junction Workshops Extension

The need for additional space, as well as extra equipment at the Midland Junction workshops, to relieve acute and growing congestion and to permit of more economical working, has become increasingly evident in recent years. The shops were built in 1904 with main blocks 300 ft. long, and these were extended to 600 ft. in 1912, since which time no major additions have been made, although the activities of the workshops have increased considerably, particularly as regards the construction of new locomotives and carriage and wagon stock. One result of this has been that new machinery installed from time to time has had to be fitted in to the space available, with consequent cramping of the existing equipment.

With the placing of orders with the workshops for certain defence works, the necessity for increased accommodation has become correspondingly greater, and, to meet the position, approval has now been given to the building of an annexe at an estimated cost of £50,000, and work on the building is well in hand. The provision of this annexe, and some rearrangement of other sections to provide for better working, will greatly facilitate both normal railway and defence works, and at the conclusion of the war will be of great assistance in the carrying out of the rolling stock manufacturing policy of the department.

ARGENTINA

Railway Pension Fund

Although neither the Argentine Government nor Congress has so far made any move towards amending the law relating to the Railway Pension Fund, the precarious position of which was referred to in THE RAILWAY GAZETTE of December 20, the matter continues to be the subject of discussion in the press, and it is reported that the directors have submitted certain proposals to the Government with a view to placing the fund on a solvent basis. These proposals include (*a*) the raising of the employees' monthly contributions from 6 to 8 per cent.; (*b*) an increase in the contributions from the railway companies of from 8 to 12 per cent.; (*c*) the incorporation in the fund of the personnel of all railway unions, mutual aid and co-operative societies which are recognised by the Government and have a capital of not less than $100,000 paper; and (*d*) the repeal of article 27 authorising both the companies and the employees to reckon fractions over six months as one year for the purpose of computing the length of service and the establishment on a provisional basis of invalid pensions. Pending the discussion of these proposals by Congress, the fund authorities have requested the Government to take over the deficit for the year 1938-39, amounting to some 12,500,000 pesos, in accordance with article 8 of Law No. 10,650.

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One of the features of the foregoing proposals to which the companies have justly taken strong exception is that relating to an increase in their own contributions. In a note addressed to the Government, the companies point out that the present plight of the fund is entirely due to the defective manner in which the scheme was drawn up, and the unsoundness of its financial provisions which, it was predicted at the time, were bound sooner or later to land it in difficulties. For this, however, the railways are in no way to blame, and for this reason it is most unfair to suggest that they should be called on to make good its deficiencies, apart from the fact that, owing to their diminished resources, it is beyond their power to comply with such a demand. When it is remembered that the total sum owing to the fund by the companies is estimated at over 60,000,000 pesos, on the existing basis of 8 per cent. of their traffic receipts, the absurdity of increasing the rate to 12 per cent. requires no stressing.

Radical reforms in the Pension Law are urgently called for if ultimate insolvency is to be avoided; but it appears doubtful if the proposed amendments are adequate to meet the situation.

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The last time the pension law was amended was in 1935, when the monthly contributions were raised from 5 to 6 per cent., and at the same time the invalid pensions, which had been granted on much too generous a scale, were reduced by one-half, in addition to which other changes designed to place the fund on a sounder basis were introduced. The Chamber of Deputies had proposed that the monthly contributions should be based on the amount of the salaries, but this amendment was overruled by the Senate, which fixed the monthly quotas at the uniform rate of 6 per cent. Now that the reform of the law is again under consideration, the moment would seem to be opportune for adopting the Deputies' proposal.

Raising of Retiring Age

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Fund Loses Lawsuit

A lawsuit of importance both to the railways and the Pension Fund has been decided in favour of the former by the Argentine Supreme Court. As reported in these columns a few months ago, the Railway Pension Fund Board claimed the refund from one railways of a sum amounting in the aggregate to about 20,000,000 pesos, which, the board contended, the companies had wrongfully deducted in respect of expenses incurred by them in connection with the collection and paying into the fund of contributions from the employees. As a test case, the board brought an action against the Central Argentine Railway. The Federal Court decided against the company, and this decision was confirmed by the Court of Appeal. The railway then took the case to the Supreme Court, which reversed the judgment of the lower courts and gave a verdict for the railway whose case was based on the dual grounds that it could not be forced to incur expenses in the collec-

XUM

tion of contributions, and the length of time—five years—which had elapsed since the date of the contributions. Although this decision of the Supreme Court is very satisfactory from the standpoint of the railways, it is a severe blow to the Pension Fund authorities, who had been relying upon the sum involved to assist in staving off their financial difficulties.

SWITZERLAND

1940 Jubilees

The following golden or silver jubilees would under normal conditions have been commemorated last year with appropriate celebrations, and are worth recording :—

1890. January 1.—Jura-Simplon Company formed by amalgamation of the Suisse Occidentale-Simplon and Jura-Berne-Lucerne Railways.

June 1.—Opening of Visp-Zermatt metre-gauge railway (35 km.) and Monte Generoso rack railway (9 km.).

July 1.—Opening of the metre-gauge Berner Oberland Railways (24 km.), from Interlaken to Lauterbrunnen and Grindelwald.

1915. May 16.—Frasne-Vallorbe direct line opened by P.L.M., obviating reversal at Vallorbe and improving access to Simplon route. On this section is the Mont d'Or tunnel, blown up in June, 1940, by the retreating French forces.

June 1.—Opening of Furka-Oberalp Railway from Brigue to Gletsch (46 km.).

October 1.—Opening of Moutier-Lengnau line, owned by the Lœtschberg Railway and worked by the Swiss Federal Railways as part of the direct route from Bienne (Biel) to Delémont, Delle, and Basle. This 12-km. line includes the 8·6-km. Grenchenberg tunnel, begun in November, 1911, which cost Swiss fr. 25,000,000, 10,000,000 of which were borne by the French Eastern Railway. [Its position was clearly indicated on a map of the Lötschberg system in our issue for July 15, 1938 (page 136)—Ed., *R.G.*]

New Rhine Port near Basle

The new port on the Rhine at Birsfelden, near Basle, built with a view to relieving the congested ports at St. Johann and Kleinhüningen, is now completed and ready for inauguration as soon as river traffic is resumed. Work on the new port was begun in December, 1937. [A map of the arrangements at Basle, with some notes regarding the ports then existing and their traffic, appeared in our issue for August 19, 1938 (page 321)—Ed. *R.G.*]

The Gornergrat Railway

The well-known Gornergrat rack railway, the highest in Europe after the Jungfrau line, has been worked for winter sports traffic as far as Riffelalp (altitude 2,213 metres) since 1928. During the present winter season trains will run for the first time to Riffelberg (2,585 metres or 8,481 ft.), opening up much more extensive ski-ing slopes. A protection gallery against avalanches, 770 metres (842 yd.) in length, has been built; the roof of it is made of pre-cast arched concrete slabs. This work, claimed to be the highest of its kind in Europe, cost fr. 450,000, of which a sum of fr. 180,000 was borne by the Confederation and the canton and commune concerned.

Further Notes on the Federal Railways 1941 Budget

[In our issue of December 27, 1940, we published an outline of the Federal Railways new works and rolling stock programme for 1941. Our correspondent now sends the following additional notes on this subject—Ed. *R.G.*] The Federal Railways have once again been obliged to prepare a budget based on the strictest economy, and a number of works which are of a comparatively urgent nature will have to be postponed until better times unless the Confederation includes them in a general programme of public works to relieve unemployment, and subsidises them accordingly. The electrification of the Oerlikon-Wettingen single line, previously mentioned, is a useful link between north-eastern Switzerland and the Olten line avoiding reversal at Zurich, and was referred to in The Railway Gazette of December 16, 1938, page 1040. Among the lines to be doubled is the section from Boudry to Auvernier, on the Yverdon-Neuchâtel route. Additional items, dependent on Federal subsidies, are the doubling of the Roches-Choindez section of the busy Delémont-Moutier route, the section from Winterthur to Räterschen (whence double-track exists to St. Gall), and another from Goldach to Rorschach. Also dependent on a subsidy is the Auvérnier (Neuchâtel)—Les Verrières (French frontier) electrification.

Additional Rolling Stock Ordered

New rolling-stock orders over and above those previously mentioned, are for 2 heavy or 4 lightweight electric locomotives, 10 vans, and various light tractors and service vehicles. The 20 coaches to be ordered are of the lightweight type.

Traffic receipts are estimated at fr. 345,000,000 and expenditure at fr. 246,000,000. The latter amount, in spite of the increased cost of materials, is fr. 46,000,000 below the 1930 figure, mainly owing to reductions in staff. The profit and loss account is expected to show a deficit of fr. 31,000,000.

New Vessel for Lake Thoune

A new motor vessel, the *Oberhofen* has been placed in service on the lake of Thoune. This is one of the four ships which conveyed visitors between the two sections of the National Exhibition at Zurich in 1939; it has a capacity of 155 passengers, is 25·5 metres (83 ft.) long and 4·1 metres (14 ft.) wide, and is equipped with a 180 h.p. diesel engine. It will be recalled that the services on the lakes of Thoune and Interlaken are operated by the Lötschberg Railway.

Miscellaneous Notes

The new holiday season tickets described in our issue for April 26, 1940 (page 601) have been highly successful, over 100,000 having been sold by September last.

The Swissair company resumed its Zurich-Munich service on September 30. The Douglas aircraft used on this route has been specially painted in the Swiss colours, to avoid any confusion.

CHINA

New East-to-West Through Route

[In our December 27 issue we published our correspondent's announcement of the opening of an important west-to-east connection from Shihchiachwang to Tehchow giving through communication from Taiyuan to the port of Tsingtao *via* Tsinau. We are now able to give a map showing the new line and through route, and the following further facility is announced by our correspondent.—Ed. *R.G.*]

Gauge Conversion

In order further to improve this east-and-west route, the Japanese have also converted the Shihchiachwang-Taiyuan section from metre to 4 ft. 8½ in. gauge. It is probable that the Tatung-Taiyuan-Pukow metre-gauge line will also be converted to standard gauge, if this work is not yet actually in hand. It forms a third important north-south line, connecting the Peiping-Kalgan-Paotou line, with the Lunghai Railway at Tungkwan, just south of Puchow.

Map showing new Shihchiachwang-Tehchow chord and connections

FERODO PHYSICAL RESEARCH LABORATORY

New physical testing laboratories have been built with facilities to cover the whole range of industrial braking and power transmission

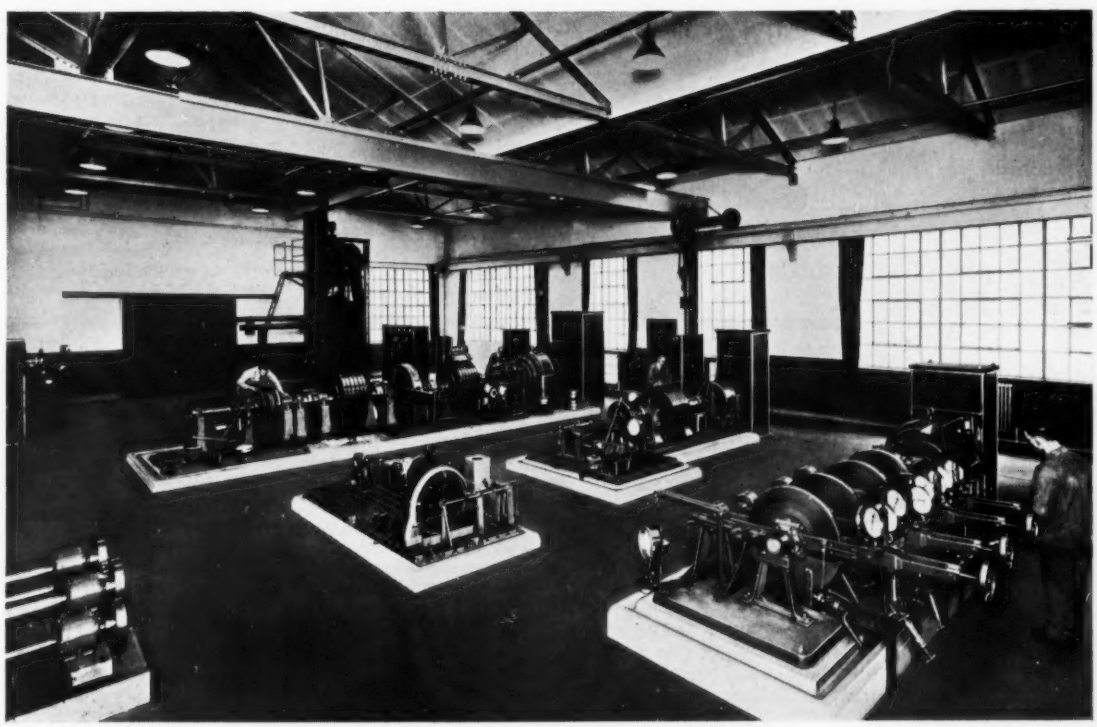
FERODO LIMITED was established some forty years ago solely to manufacture brake blocks for horse-drawn vehicles. The intervening years have witnessed rapid developments in the speeds associated with mechanical propulsion in various fields and these, together with other revolutionary developments in engineering technique, have created a demand for a highly specialised product, comprising a wide range of friction materials well abreast of the searching requirements of modern high-speed mechanical transport and the widely varied needs of industry. The company has extended its manufactures to meet all these needs.

From the experience gained, it has been established that for the correct solution of friction problems it is essential that test machinery and test apparatus must be of sufficient capacity to reproduce actual working conditions as closely as possible. In full realisation of this fact Ferodo Limited has from time to time augmented the capacity of its testing plant, but in view of increasing speeds, rates of duty and so forth in present day engineering practice, a careful survey was made of the modern industrial field, and of possible future developments, with the result that it was decided to build a new physical testing laboratory, equipped with test machines designed to cover the whole range of industrial braking and power transmission—from the testing of brakes on pedal cycles and motor vehicles up to the conditions obtaining with the brakes of an express passenger train travelling at over 100 m.p.h.

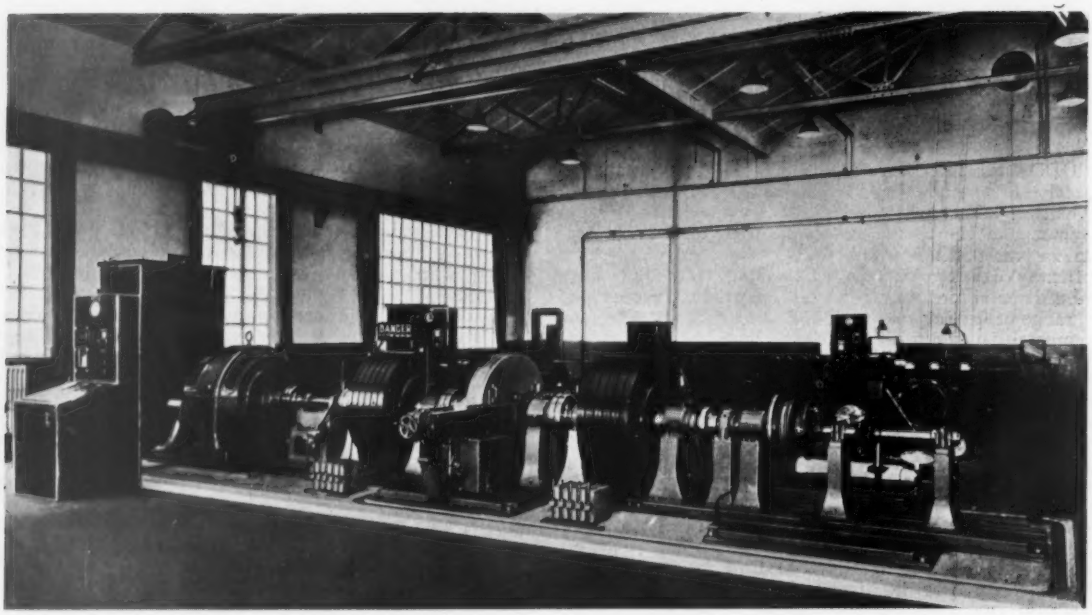
These test laboratories have now been completed, and any type of brake, brake drum or clutch can be mounted on the test machines, so that complete assemblies can be tested under actual conditions of the duty for which they were designed and, at the same time, the most suitable type of brake or clutch lining for the particular application determined. The new physical research laboratory comprises a main test room 75-ft. long × 50-ft. wide, adjoining which is a fitting and machine shop, 50-ft. long × 15-ft. wide, equipped with the necessary machine tools. There is also a conference room, so that the laboratory is a self-contained unit. All the testing equipment is of original design and incorporates all the accumulated experience of Ferodo Limited.

In addition to standard continuous and small inertia type test machines there is a large inertia test machine which is an item of interest from the railway point of view; this is driven by a 100 h.p. electric motor at constant speeds ranging from 500 to 1,000 r.p.m., or the motor can be automatically tripped out at any given speed below 500 r.p.m. The twelve main flywheels (of a total weight of 8 tons) are arranged in two groups on each side of a standard railway rolling stock wheel, and any number of these flywheels may be made to rotate with the shaft—those not in use being held stationary, in the same way as those fitted to the small inertia machine referred to above. The railway wheel is fitted with articulated torque arms designed to carry any type of railway brake blocks and heads; the load on the brake blocks is hydraulically applied and infinitely adjustable up to 3½ tons per block. Braking torque is conveyed from the torque arm to indicating and recording instruments by means of hydraulic cylinders. Automatic time-cycle mechanism is fitted enabling repeated railway brake tests to be carried out at any speed up to 100 m.p.h. at 90-sec. intervals. Speed, acceleration, and deceleration rates are recorded electrically and automatically, and all instruments are grouped at the operator's control desk. The railway wheel is mounted in a close canopied water tank, so that tests can be carried out under wet or dry conditions.

In addition to the arrangements for testing railway brake blocks, any design of brake or clutch can be fitted at the



General view of the new physical research laboratory of Ferodo Limited, Chapel-en-le-Frith



Large inertia test machine at the new physical research laboratory at Ferodo Limited, Chapel-en-le-Frith

outboard end of the machine, and stopping tests carried out in a manner similar to that described for the small-type inertia machine. Correct speed and flywheel weight can be initially determined and the machine set to work entirely automatically on a series of stopping tests with any required interval between stopping and automatic restarting. The maximum energy available at 1,000 r.p.m. is 4,183,000 ft.-lb., and this is infinitely variable to reproduce any required condition for the testing of brakes and clutches as fitted to the heaviest and fastest type of vehicle likely to be produced.

Additional machines installed are large and small V-belt test machines. The power unit of the large machine is a 60-h.p. double-ended electric motor designed to run at constant speeds between 1,000 and 2,000 r.p.m. and at each end of the motor shaft a V-belt pulley is fitted with grooves to suit any standard section of industrial V belts. The motor is arranged to drive two electric generators by the V belts under test; each generator is fitted with a V belt pulley of similar design to those fitted to the driving motor. The electric generators are each mounted independently on two separate counter-balanced swinging arms, and any desired running tension can be applied to the belts on test by sliding the balance weights along the swinging arms, and also by raising or lowering either of the generators, complete with swinging arm, any length of belt can be tested within the total length capacity of the machine, namely, 27½ ft. This machine is used for determining the durability, slipping characteristics and apparent coefficient of friction for the various standard sections of any length up to the capacity of the machine, and also for the routine control testing of works' production of V belts. Incorporated in the basement is a strongly reinforced bursting chamber for high-speed destruction testing at speeds up to 9,000 r.p.m.

As the mounting of the various types of brakes and clutches on any of the test machines, or the making up of improvised rigs, entails a certain amount of fitting, and very often machining, facilities for these operations are provided in the fitting and machine shop which adjoins the main test room. The equipment includes a lathe with tool grinder, drilling machine, bandsaw, grinding machine and fitting bench. Ample storage lockers are also provided for the large assortment of spares and instruments, which necessarily form an important part of the equipment of a physical testing laboratory.

All these test and research facilities are at the disposal of any firm interested in the application of Ferodo friction materials or of V-belt drives, in the development of new designs, or the solution of friction problems.

Rise in Road Accidents

The statistics relating to road accidents in November, recently issued by the Ministry of Transport, are disconcerting. The number of fatalities in that month were no fewer than 1,146; that compares with 926 in the similar month of 1939 and is only 10 less than the number in December, 1939, which has the unenviable distinction of being the worst month. During the 15 months of the war no fewer than 11,424 persons have been killed on the roads, an increase of 3,141 over the 15 months preceding the war. As might be expected, most of the fatal road accidents occur during the hours of darkness, and rather more than half those killed are pedestrians. There is no doubt that the blackout has played its part in adding to the numbers of those who have met their deaths on the roads of the country recently. At the same time it cannot be overlooked that miles operated by road vehicles of all kinds, and more particularly by private cars, have been considerably reduced. The Ministry of Transport, of course, takes a serious view of the position revealed by these figures and has embarked on a campaign with the intention of inculcating caution in the minds of both drivers and pedestrians. Similar steps have been taken in the past and in general the results have been disappointing, but whether the ineffectiveness of the Ministry's appeals is to be attributed to their method of presentation or to a fatal obtuseness on the part of the public is difficult to ascertain. There can be no doubt that the problem of road safety in these days, when loss of manpower from any cause whatsoever is of national importance, assumes greater moment than in normal periods. It is deplorable that in 15 months of war there has been an increase of 40 per cent. in road fatalities over the like period preceding the outbreak of hostilities. Since the German air offensive was developed at midsummer, 19,545 civilians have been killed by bombs and although the periods are widely different the numbers are too close to give any cause for satisfaction. It is indeed a grave position when the menace of our own roads should bear any resemblance whatsoever to that inflicted by enemy bombardment.

ELIMINATING OVERHEARING ON TELEPHONE CIRCUITS

The Secraphone apparatus has been introduced to provide means of secret telephoning secure against all risk of unauthorised overhearing

IT is often highly desirable to be able to carry on a telephone conversation with the assurance that it cannot be overheard, not even by anyone stationed at the switchboards or able to make contact with the lines. With ordinary telephone equipment, false connections or defective insulation not infrequently result in a person being able to listen to an entire conversation between two others as distinctly as if it were intended he should do so. To provide a system of telephony proof against risk of overhearing, what is known as the Secraphone type equipment has been introduced by the Telephone Manufacturing Co. Ltd., of Dulwich, London, and St. Mary Cray, Kent, and has already been applied to railway service. Its essential feature is that such sounds as may be heard irregularly between two instruments used for conversing privately, are quite unintelligible. All that any third party can pick up is a meaningless noise or succession of squeaks. Secrecy is achieved by altering the frequency of the speech tones, so that they become incomprehensible to unauthorised listeners, and re-converting them to normal at the receiving apparatus.

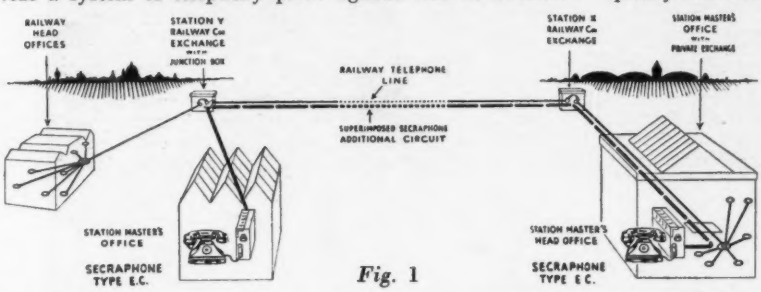


Fig. 1

There are four types of Secraphone equipment, known respectively as A, E.C., 24, and 44R; the last two are identical except that the 44R type is arranged for rack mounting. Type A is used in combination with an ordinary telephone set, which is used to establish contact between the speakers, after which the Secraphone instruments permit them to converse secretly should they so desire; the call may be terminated by merely replacing the Secraphones on their cradles. This arrangement therefore provides ordinary or secret conversation at will between the points concerned, but does not otherwise increase the facilities available.

In the E.C. type the Secraphone apparatus gives an additional channel over an existing telephone line, so providing an extra and secret facility, which consequently needs its own means of calling. It does not interfere with the use of the previously existing telephone apparatus in any way. Incoming calls are indicated by the glowing of a lamp, remaining alight until the call is answered, combined with a bell or buzzer signal. The accompanying diagram, Fig. 1, shows a typical application of this type of Secraphone equipment to railway service.

Types 24 and 44R are designed to give secret speech between the terminals of a carrier wave telephone circuit and may be connected to either two or four lines without in the least disorganising the existing apparatus. The working of all these designs is briefly as follows.

In the type A apparatus a special frequency changing circuit combines the speech waves from the microphone with those emitted by a thermionic valve carrier oscillator, in such a manner that the waves passed on to the line circuit have a frequency which is the arithmetical difference between the other two. This inverts the speech tones, bass ones becoming treble and the treble bass; before being transmitted these inverted tones are amplified, to compensate for loss in conversion. On reception the inverted speech tones pass through the line transformer, which is of high breakdown strength, and a frequency changing circuit similar to that used in the outgoing path. The received frequencies are thus changed back to normal and, duly amplified, are passed to the telephone receiver. The apparatus gives very good quality and level of speech, comparable with that from a good telephone of ordinary type, with complete absence of background noise.

The standard equipment is built for operation from 200- to 250-volt d.c. or a.c. (50-cycle) mains—apparatus for operation on non-standard mains can be supplied on request—or for working from a 12-volt accumulator where mains are not available. Power demand is about 50 watts during conversation and half that figure at other times. When accumulators are used 1½ A. is taken, during conversation only. The complete equipment is mounted in an oiled teak case measuring 22 in. × 8 in. × 14 in. high, specially seasoned to give lasting service; it is provided with carrying handles and heat dissipation vents, and the mains switch, socket and fuses are located conveniently on the side. For rack mounting a grey metal dust cover is supplied, the mounting panel being drilled to fit standard size racks, as commonly used with other apparatus similarly mounted. Brackets for wall mounting may be had, if desired.

In the type E.C. equipment, the principle of which is shown in Fig. 2, the voice frequencies are transposed to the ultra-voice frequency band and the speech tones reversed, and no person can listen in without identical apparatus. This type has a junction box, where the lines from the Secraphone and normal telephone apparatus join, and a bell box, for wall or desk mountings. The switch on the Secraphone applies only half power to the thermionic valves, full power being turned on when the hand set is lifted. On the valves reaching their optimum working temperature the indicator lamp glows, showing that the apparatus is ready for use. As with the type A, a battery-operated E.C. equipment is available. In that case there is no waiting for the valves to heat up, speech being possible as soon as the receivers are lifted.

The apparatus of the type 24 equipment is housed in a teak case similar to that used with the type A and nothing further is required. It consequently takes up little room and is easily fitted. It introduces no attenuation into the existing apparatus. This set is normally sent out arranged to work with two-wire circuits of 600 ohms impedance, with tappings on the line transformer for use on circuits of 300 or 150 ohms impedance. Changeover links provide for connecting to four-wire circuits. All valves are guaranteed for 5,000 hours. Special arrangements of the Secraphone can be supplied to meet particular local conditions, both technical and climatic.

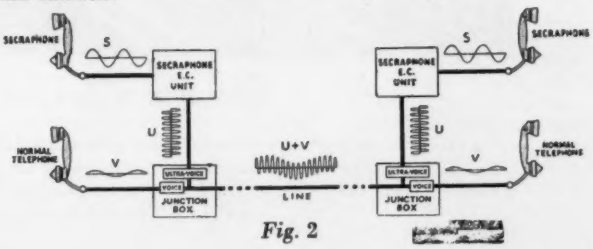


Fig. 2

British Railways and the War—51

HOW THE RAILWAYS CARRY ON IN WARTIME

The two photographs reproduced above give a striking impression of the speed with which railway engineers repair bomb damage. The pictures were taken on the L.N.E.R. line in the eastern suburbs of London, and show : above, the damaged track after a bomb crater had been filled, and, below, the same spot a few hours later with the rails already restored and the train service reinstated

RAILWAY NEWS SECTION

PERSONAL

MINISTRY OF INFORMATION APPOINTMENTS

The Minister of Information has appointed Mr. C. J. Radcliffe, K.C., Chief Press Censor, to be Acting Controller of the Press & Censorship Divisions of the Ministry, and Rear-Admiral G. P. Thomson, Director of Censorship, to be Acting Chief Press Censor.

L.M.S.R. APPOINTMENTS

The L.M.S.R. announces that Mr. John Ballantyne, the company's Chief Officer for Scotland is to retire on March 31, and will be succeeded by Major Malcom S. Spier, the present Manager of the Northern Counties Committee, the company's undertaking in Northern Ireland.

Mr. Owen Glynne Roberts, C.B.E., retired on December 31, after 45 years' railway service, from the position of Secretary and Assistant to the President of the London Midland & Scottish Railway Company. For the past fourteen years Mr. Glynne Roberts has been Assistant to the President of the L.M.S.R., and, in addition, has held the position of Secretary for the past twelve years. He received the O.B.E. for railway services during the last war, and the C.B.E. to commemorate the centenary of the opening of the London & Birmingham Railway. He is succeeded by the Assistant Secretary, Mr. G. Royde Smith.

SOUTH INDIAN RAILWAY

Mr. C. A. Muirhead, Agent & General Manager in India, is retiring from this position in the new year, and is taking up a seat on the board of directors.

Mr. J. F. C. Reynolds, M.C., Chief Transportation Superintendent, is to become Agent & General Manager.

Mr. S. Purnaiya, is to become Transportation Superintendent.

We regret to record the death, on December 6, of Mr. L. Knibbs, who was for many years a familiar figure in the Nottingham district. Mr. Knibbs began his railway career as a porter at Shambrook, and occupied positions as signalman at Olney and Bedford, relief signalman at Shipley, and foreman signalman at Nottingham. In 1901 he was appointed Traffic Inspector at Nottingham, and retained this post until his retirement in July, 1919.

Sir Follett Holt, whose retirement from the chairmanship of the Buenos Ayres Great Southern and Western Railways we have already recorded, was born on December 4, 1865, and is the fifth son of the late Mr. Robert Hallett Holt, the Land Titles Commissioner for England. He was educated at Merchant Taylors School and then studied at the City & Guilds Engineering College before serving his time in the Nine Elms shops of the old L.S.W.R. In 1887 he joined the staff of Sir Alexander Rendel, Consulting Engineer, and two years later accepted an appointment as an assistant in the Locomotive Department of the Buenos Ayres & Rosario Railway, eventually rising to be Acting Locomotive Superintendent of that line. In 1897 Mr. Follett Holt was appointed General Manager & Chief Engineer of the Great Western Railway of Brazil, but he returned to Argentina three years later to take up a similar position on the Entre Rios Railways. There he designed and built the train-ferry system of the railway. In 1910 he returned to London on being elected a Director of that company, though subsequently he has paid numerous extended visits to and has kept in close touch with South America. Early in 1915, Mr. Follett Holt went to the War Office, joining Mr. G. M. Booth in organising shell production. He subsequently became a settler under the Munitions Levy Act and eventually a Financial Adviser to the Coal Controller. In 1916 he induced the Government to instal the Channel Ferry and early in 1918 became Commercial Member of His Majesty's Diplomatic and Commercial Mission to the South American Republics. He received the K.B.E. in the New Year Honours of 1934. Sir Follett Holt remains Chairman of the Entre Rios and the Argentine North Eastern Railway Companies, the Bahia Blanca & North-Western Railway, the Cordoba Central Trust, the British-Argentine Railway Committee, and of the Pullman Car Co. Ltd., of which he is also Managing Director. He is, moreover, a Director of Barclays Bank, the Bank of London & South America, the North-Western of Uruguay Railway, and the Central Uruguay Railway. He was also Chairman of the London Executive Committee of the British Empire Trade Exhibition held in Buenos Aires in 1931, and in his younger days was for three years a member of the winning team of the Polo Championship of the River Plate. He is a member of the Institution of Civil Engineers and a Fellow of the City & Guilds Institute.

Sir Follett Holt, K.B.E., M.Inst.C.E., F.C.G.I.
Retiring Chairman, Buenos Ayres Great Southern and Western Railways

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INSTITUTION OF LOCOMOTIVE ENGINEERS

The following elections were made at a recent meeting of the Council of the Institution :—

Members

Mr. George Ernest Cockburn, Consulting mechanical engineer (26, St. John's Wood Court, N.W.8); Mr. Albert Frank Collins, Technical Officer (Rlys.), L.P.T.B., Acton Works, Chiswick; Mr. John Douglas, Asst. Director of Transportation Equipment, Ministry of Supply, Bush House, W.C.2; Mr. Francis Henry Barham Harris, Chief Draughtsman, locomotive and railway work, W. G. Bagnall Limited, Castle Engine Works, Stafford; Mr. Frederick Munns, Locomotive Works Manager, Southern Railway, Eastleigh, Hants ; Mr. James Shaw, Locomotive, Car-

riage & Wagon Superintendent, Darjeeling-Himalayan Railway, Tindharia, Bengal.

Associate Members

Mr. George Edwin Berry, works drawing office, the Hunslet Engine Co. Ltd., Leeds; Mr. William Rymer Craig, District Locomotive Superintendent, B.B. & C.I. Railway, Bulsar, India; Mr. John Dexter Hodgkiss, head of locomotive and mechanical engineering staff, Livesey & Henderson, 14, South Place, E.C.2; Mr. Thomas Edward Green, Estimating & Contract Engineer, Traction Dept., the English Electric Co. Ltd., Bradford, Yorks; Mr. Jai Krishna Mehra, Production Engineer (Locomotive), B.B. & C.I. Railway, Ajmer, India; Mr. William Vaughan-Jenkins, Locomotive Dept., L.M.S.R., Bristol; Mr. Alan Latham Wallace, Acting Process Engineer, Southern Railway, Locomotive Works, Eastleigh, Hants.

Associate

Mr. Andrew Eddington Roux, Superintendent Engineer, Railway Sales Dept., the Texas Co. (S.A.) Limited, Johannesburg.

Transfer from Associate Member to Member

Mr. Arthur James Stephen Brown, Works Manager, J. Stone & Co. Ltd., Deptford; Mr. James Cardus, Locomotive, Carriage & Wagon Chief Draughtsman, Ferrocarril Central Argentino, Rosario, Argentine Republic.

Transfer from Graduate to Associate Member

Mr. Arthur Vyvyan Chubb, Inspecting Engineer, Rendel, Palmer & Tritton, Manchester; Mr. Christopher Roland Longman Rice, Assistant District Locomotive Superintendent, L.M.S.R., Saltley; 2nd Lt. Geoffrey John Wilks, Railway Training Centre No. 1.

Mr. M. J. H. Bruce, Works Engineer (Chiswick), London Passenger Transport Board, who, as announced in our issue of July 26 (page 99), has been lent to the War Office as Mechanical Engineering Adviser to the Quartermaster-General, has been given the rank of Major-General and appointed Director of Ordnance Services (Engineering).

We recorded in our July 26, 1940, issue (page 99) that Mr. W. S. Graff-Baker, Chief Mechanical Engineer (Railways), London Passenger Transport Board, had been appointed Director of Tank Production, Ministry of Supply. We are now informed that the work of Mr. Graff-Baker's office is being undertaken by Mr. E. Graham, Mechanical Engineer (Railways) and Mr. E. T. Brook, Superintendent of Rolling Stock, both of whom report to Mr. V. A. M. Robertson, Engineer-in-Chief.

Mr. Gilbert Matthews, Principal Assistant to the Superintendent of the Line, Great Western Railway, who, as announced in our December 27 issue, has been appointed Superintendent of the Line in succession to Mr. Frank Potter who retired on December 31, was educated at Westminster, and entered the company's service in the General Manager's office, in 1908. During 1909-1910 he gained experience in station working in the London Division, and then went to the United States to study traffic operating on the Pennsylvania and the New York Central Railroads. On his return to this country he was attached to the Passenger Train Running Section of the Office of the Superintendent of the Line until his appointment in 1925 as Chief Clerk to the Divisional Superintendent, Plymouth. In January, 1932, Mr. Matthews was appointed Assistant to the Superintendent of the Line, dealing principally with staff matters, and in July, 1934, he became Operating Assistant to the Superintendent of the Line. In October, 1937, Mr. Matthews was appointed Divisional Superintendent at Swansea, and in January, 1939, returned to Paddington as Principal Assistant to the Superintendent of the Line.

Mr. Gilbert Matthews

Appointed Superintendent of the Line, Great Western Railway

We regret to record the death on December 7 of Mr. Charles Pratt Sparks, C.B.E., at the age of 74. He was a Past-President of the Institution of Electrical Engineers.

NEW YEAR HONOURS

Among the honours announced in the New Year were the following of transport and industrial interest:—

Knights Bachelor

Mr. Peter Frederick Blaker Bennett, O.B.E., J.P., Past President of the Federation of British Industries, lately Director-General of Tanks & Transport in the Ministry of Supply.

Col. Charles Fred Carson, M.C., R.E. (Retd.), General Manager, North Western Railway of India.

Mr. Allan John Grant, J.P., Managing Director of Thos. Firth & John Brown Limited.

Mr. Ernest John Hutchings Lemon, O.B.E., M.I.Mech.E., M.Inst.T., Vice-President of the London Midland & Scottish Railway. For services to the Air Ministry.

Col. Alan Henry Lawrence Mount, C.B., C.B.E., R.E. (Retd.), Chief Inspecting Officer of Railways, Ministry of Transport. For services on the Indian Pacific Locomotive Committee, of which he was Chairman.

Mr. William Bruce Thomas, K.C., President of the Railway Rates Tribunal.

K.C.B. (Civil Division)

Mr. Edward Victor Appleton, D.Sc., LL.D., F.R.S., Secretary, Department of Scientific & Industrial Research.

C.B. (Civil Division)

Mr. Robert Hill Tolerton, C.B.E., D.S.O., M.C., Principal Assistant Secretary, Ministry of Transport.

Mr. John Joseph Wills, C.B.E., Principal Assistant Secretary, Board of Trade.

C.I.E.

Mr. Charles Alexander Muirhead, Agent & General Manager, South Indian Railway.

Mr. John David Westwood, Agent & General Manager, Bengal & North Western Railway.

Mr. John Douglas Blomfield, Indian Service of Engineers, Chief Engineer, Communications & Works Dept. (Communications & Buildings Branch), Bengal.

Mr. Arthur Stanley Trollip, General Manager, Bombay Electric Supply & Tramways Co. Ltd.

K.B.E.

Mr. Harold Winthrop Clapp, formerly one of the Commissioners of the Victorian Government Railways, appointed General Manager, Commonwealth (of Australia) Aircraft Construction, September, 1938.

C.B.E.

Mr. Sidney Emile Garcke, M.I.Mech.E., Member of the Transport Advisory Committee, Vice-Chairman, Tilling & British Automobile Traction Co. Ltd.

Mr. William Edward Hogg, A.R.C.Sc., M.Inst.C.E., Chief Engineer (Inspection), Crown Agents for the Colonies.

O.B.E.

Mr. Samuel Crawford Bradley, Member of Executive Council, Amalgamated Engineering Union, Chairman of the trade union side of the Engineering Trades Joint Council, Government Industrial Establishments.

Mr. Peter Haig Muirhead, Director & Works Manager, Vickers-Armstrongs Limited.

M.B.E.

Mr. Israel Thomas Christian, Assistant Secretary, Indian Railway Conference Association.

Mr. Frederick Dudley Jarvis, Permanent Way Inspector, Palestine Railways.

Mr. Alfred Victor Baker, Staff Officer, Ministry of Transport.

Mr. Moses Paicovitch, Trains Controller, Palestine Railways.

Mr. E. J. H. Lemon, who is the recipient of a Knighthood in the New Year Honours List, is the Commercial & Operating Vice-President of the London Midland & Scottish Railway. He was loaned to the Air Ministry in June, 1938, at the express desire of Mr. Neville Chamberlain, then Prime Minister, and was appointed Director-General of Aircraft Production. He was made responsible for all production of engines, aircraft, and equipment, and became a Member of the Air Council. Mr. Lemon's previous pioneer work with the L.M.S.R. included the planning and installation of pioneer production methods for the building and maintenance of locomotives, carriages, and wagons, which he introduced and which was recognised by foreign observers as an outstanding development in British industry. This fitted him admirably for the problems of production and output in the rapidly expanding aircraft industry. The programme of production planned by him involved not only reorganisation of existing plant but the establishment of new factors as necessary links in the chain of output. The programme laid down more than fulfilled expectations, and was in fact realised in advance of the date originally planned. The Secretary of State for Air, in thanking the L.M.S.R. board for Mr. Lemon's services, emphasised the great success which had resulted from his work and added that it would be difficult to overestimate the value of his services to the nation.

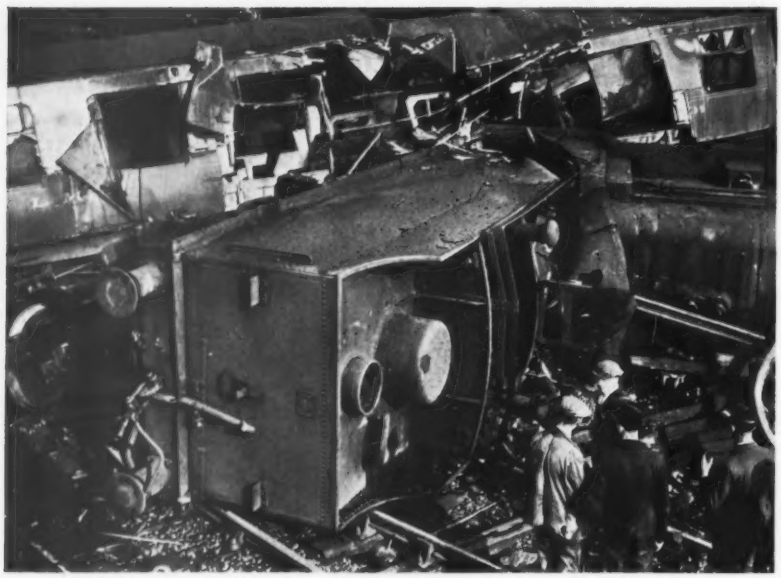
Lt.-Colonel A. H. L. Mount, C.B., C.B.E., R.E. (retd.), who is the recipient of a Knighthood in the New Year Honours List, has been Chief Inspecting Officer of Railways, Ministry of Transport, since May, 1929. He had retired in July, 1922, from the Royal Engineers, in which he had received his commission 20 years earlier. He joined the Indian Railway Department on January 31, 1906, after a year's practical experience in the Locomotive Department of the former Midland Railway. In October, 1906, he was appointed an Assistant Engineer on the North Western (State) system. From February, 1911, to February, 1912, he was placed on deputation as Assistant Engineer in charge of the Delhi Durbar light railways. When war broke out he at once reverted to military duty. For his services in the field he was made a C.B.E. In 1938 Colonel Mount went to India as Chairman of the Pacific Locomotive Committee, the report of which we reviewed on July 7, 1939.

Mr. E. J. H. Lemon, O.B.E.

Who is the recipient of a Knighthood, is the Commercial & Operating Vice-President of the L.M.S.R. He was loaned to the Air Ministry in 1938, appointed Director-General of Aircraft Production, and a Member of the Air Council.

Lt.-Colonel A. H. L. Mount, C.B., C.B.E.

Who receives the Honour of Knight Bachelor, is Chief Inspecting Officer (Railways), Ministry of Transport, and was Chairman of the Indian Pacific Locomotive Committee which issued its report in 1939



Left: The overturned engine (of the 3-cylinder 4–6–0 "Patriot" class) and tender, and one of the wrecked coaches of the express which was derailed at Wembley, L.M.S.R., on October 12. See Ministry of Transport accident report opposite

Right: The scene just west of Norton Fitzwarren station, G.W.R., on November 4 after the derailment at the down relief catchpoints of a Paddington-Penzance express. The 4-cylinder 4-6-0 locomotive, No. 6028 "King George VI," came to rest on its side in soft ground and was little damaged. See Ministry of Transport accident report opposite

MINISTRY OF TRANSPORT ACCIDENT REPORTS

Wembley, L.M.S.R.: October 12, 1940

Major G. R. S. Wilson inquired into the serious derailment which occurred at about 7.10 p.m. on October 12, 1940, at Wembley, L.M.S.R., when the 11.50 a.m. express, Liverpool (Lime Street) to Euston, consisting of 11 corridor carriages and 2 goods wagons, drawn by 4-6-0 Class "5X" locomotive No. 5529 and running at its normal speed of about 55 m.p.h. on the up fast line, struck a heavily loaded 4-wheel luggage barrow which had run back down the ramp at the north end of the island platform between the up fast and down slow, fouling the former. Considerable damage resulted and the extensive nature of the derailment was due to the points and crossings of the crossover junction between fast and slow lines, about 240 yd. ahead of the point of collision. Up to and including the facing points, which were little damaged, marks indicated that only two pairs of wheels had become derailed, probably the engine bogie. Serious derailment began at the V-crossing, and there was wholesale destruction beyond. Only the three leading carriages in the train received really serious damage, however, and all the casualties to passengers were in the first one and in the crushed ends of the two following. The driver and fireman, whose engine was overturned and had its boiler pierced from end to end by a rail, were killed, as well as 9 passengers. Four other passengers received serious injuries but there were no complaints of minor injury or shock. It is unlikely that the driver had a chance to see the barrow before the engine struck it; he appears to have acted promptly, for the regulator was found shut and the brake applied. The weather was fine and clear.

The accident took place after the blackout had begun, but rescue work was promptly carried out with the aid of handlamps and torches. Advantage was taken of moonlight to get cranes into position, but serious work was practicable only in daylight. Euston had to be closed for steam services which were not fully restored until the evening of October 17. Steam trains were terminated at Watford, though some were diverted to St. Pancras. The G.W.R. dealt with increased traffic to Birmingham, Chester and Shrewsbury, and the L.N.E.R. to Scotland. Ordinary freight traffic was affected. (The report has an appendix showing the progress of the restoration work.)

The platform ramp had the standard 1 in 8 slope, faced with "silica stone" pre-cast slabs not specially roughened; the surface was dry, 26 ft. 6 in. from coping to coping, but there is a stairway leaving only 9 ft. 6 in. clear at the top of the ramp on the up fast side. The view from the barrow crossing of an approaching up fast train is obscured by an overbridge pier until reaching the line itself, but the starting signals at the up end of the platform can be seen from the foot of the ramp. Barrows are lowered on a hoist to the end of the up slow platform and brought to the others over the barrow crossing.

The barrow was of the ordinary four-wheel type, weighing 4¼ cwt., with chains to secure the wheels but no brakes. It was practically destroyed, and the rear axle, 1¼ in. round bar, appears to have been the likely cause of the initial derailment. It was being taken across the line by three porters, none very robust, and was loaded with parcels up to about 8 to 10 cwt. The men had difficulty with it, and when nearly at the top of the ramp one of them fell; the barrow began to run back, and although attempts were made to stop it, or at least divert it away from the line, it came to rest with one corner foul of the up fast. The men had handled similar loads before and, though they had often slipped, never lost control. The station foreman thought the load well within the capacity of three ordinary men; loads of at least 8 cwt. were necessary to deal with the traffic. The relief stationmaster, however, thought such loading not really necessary; traffic left behind could have been worked away by a subsequent service without undue delay.

Inspecting Officer's Conclusions

The Inspecting Officer came to the conclusion that this loaded barrow was too heavy in relation to the strength of the men handling it. Slipping was the rule rather than the exception when they handled such loads, and trial confirmed that there was no power in reserve. Supervision of the parcels work—except for loading of trains—was not part of the station foreman's duties, and in the absence of representations from the men as to difficulties the stationmaster can hardly be criticised. Neither does serious responsibility rest with the porters, who were exerting themselves to the full to despatch traffic punctually, though a more experienced man might have first looked at the signals and waited until the train had passed.

Remarks and Recommendations

Major Wilson observes that collisions with platform barrows have occurred in the past, but without such serious consequencies since the case at Wellingborough (September 2, 1898) when the extent of the derailment was comparable. The results of such a collision at high speed are purely fortuitous, but constant care is necessary in handling barrows generally if serious risk is to be avoided. Adequate supervision becomes now of greater importance, with shortage of staff, increased traffic, and possibly no alternative but to employ comparatively inexperienced men on responsible work. Special attention should be given to impress on supervisory staff the necessity for close attention to loading and working of barrows in the neighbourhood of running lines. Consideration should be given to the working strength available and individual capacity of the men. Circumstances do not appear to justify another luggage hoist or other structural alterations at Wembley, which would necessarily be costly, but the railway company should consider means of giving better foothold on the ramps there and at other places where heavy loads are handled, either by roughening the surface or treating it with non-slip composition or, better still, by providing, where practicable, short cross-bars of wood or metal within the barrow track.

Norton Fitzwarren, G.W.R.: November 4, 1940

Lt.-Colonel A. H. L. Mount, assisted by Major G. R. S. Wilson, inquired into the serious accident which occurred at 3.47 a.m. on November 4, 1940, when the 9.50 p.m. passenger train, Paddington to Penzance, composed of 13 bogie coaches, drawn by 4-6-0 "King Class" locomotive No. 6028, travelling at 40-45 m.p.h., and having passed two successive stop signals at danger on the down relief line, became derailed at the catch points protecting the down main, where the two lines converge west of Norton Fitzwarren station. The engine was thrown clear and not seriously damaged, having overturned on to soft ground, but the two leading coaches passed it, the third was telescoped against the tender, the fourth thrown out to the right and the fifth telescoped for about half its length into the third. The sixth was derailed and damaged at the leading end but the rest of the train remained on the track and suffered little damage. The driver was under the wrong impression that he was on the down main, the signals of which had been lowered for the 12.50 a.m. newspaper train, Paddington to Penzance, which was travelling at 55-60 m.p.h. and overtook the passenger train as the derailment occurred; suffering slight damage, it fortunately just got clear before the line was obstructed. The night was very dark and stormy with a strong westerly wind: it does not appear to have been raining at the time, though the rail was wet. In consequence of the accident 27 persons, including two G.W.R. servants (one the fireman) and 13 naval men were killed, and 56 seriously injured. Assistance arrived promptly, but an R.N. Surgeon Commander on the train did valuable work even before it came, and the military authorities were most helpful.

The passenger train had stopped at the down relief platform at Taunton at 3.30 a.m., 68 min. late. There is a facing crossing to the down main beyond the platform; in order to clear the

verandah roof, the home signals for Taunton Station West box are bracketed out to the right, and can be seen from the driver's (right-hand) side of the footplate when the engine is standing ready to start. The down main home, on a post to the right of that line and 40 yds. further on, can also be seen from the same spot. Except for the starting signal, on a gantry across all lines, all other down relief signals are on the left of that line as far as Norton Fitzwarren. The down main starting is also on the gantry; but of the remaining signals for that line, those at Taunton West Junction and Silk Mill crossing are on the right, while the home, starting and advanced starting for Norton Fitzwarren are on the left, these differences being due to the space available between the tracks at the various locations. Norton Fitzwarren has a 3-shot detonator placer on the down relief, 190 yds. in rear of the catchpoints. The detonators are on the rail when the lever is normal; it must be pulled to release the starting signal 20 yds. in rear. Viewed from the footplate of a "King" class engine on a clear night, all signals for each line were found to show up distinctly and to be well separated. Only for a few moments, when rounding a gentle left-hand curve beyond Silk Mill box, were they lost to view from the driver's position. The standard G.W.R. A.T.C. is in use at all distants, except inner distants; section signals are locked by the block, and distant signals "proved." All signalling apparatus was found in good order after the accident.

The passenger train was driven by P. W. Stacey, of Old Oak Common shed, an experienced, capable man with an excellent record and 40 years' service. He had a remarkable escape. His evidence, entirely straightforward and quite emphatic, was to the effect that a minute after arriving at Taunton he saw the down relief to down main signal change to green; he observed it again a little later, but seeing a green light just before starting he was "not sure which one this was." He proceeded on what he thought was the down main line and had the A.T.C. siren on leaving the platform. He did not have another. As he approached Norton Fitzwarren a train passed on his right, and, realising he was on the relief line, he closed the regulator and applied the brake. The anti-glare sheets were all in position, with a space on his side for his head to be outside the cab. From this position he was observing the signals. He heard no detonators, but did not think the passing of the other train would have prevented his doing so. When the engine came to rest he climbed out of the cab and proceeded to Victory Crossing box to protect the line.

The guard, a ticket collector and a parcel porter on the train could give no material information and had not noticed which line the train had taken after Taunton. The enginemen and guard of the newspaper train did not notice the passenger train at all, but the guard felt something hit his van. He applied the brake and the train stopped beyond Victory Crossing. Proceeding to Wellington, the next station, for the examination they heard of the derailment.

The signalman at Taunton West station box had set the signals for a movement from down relief to down main at 2.58 a.m., and had then to restore the crossing to normal for a different movement. He did not alter it again. From information received he decided to let the newspaper train, which was gaining time, run through on the main and send the passenger forward on the relief. He lowered his signals for it to do so and noticed that Taunton West Junction distant, and inner distant were also "off" when the passenger train left at 3.44 a.m., so that Stacey should have received no siren at the platform. He had had no occasion to change his mind with regard to routing the passenger train, and even if he had, no reason to deny it. The signalmen at Taunton West Junction and Silk Mill had all signals clear for both trains. The signalman at Norton Fitzwarren accepted both trains in regulation manner. His relief line signals were kept at danger and the detonator-placer lever was normal. Lowering the relief home when the track circuit in rear became occupied he then saw the passenger train pass at about 40 m.p.h. He did not hear detonators, though he had done so at other times, such as during shunting operations. He could not say whether there were fresh detonators in the machine; inspection was not his responsibility, but had they been previously exploded it was the signalman's duty to ask station staff to replace them. The cases (two) in the clips were rusty and corroded; they gave the impression of not having been recently exploded.

Chief Inspecting Officer's Conclusions

Colonel Mount's conclusion was that the sole cause of the accident was an unaccountable lapse on the part of Driver Stacey, who mistook the line he was on. Driver Stacey frankly admitted his responsibility, but his account, given in good faith, appeared to have been affected by his experiences. Colonel Mount is forced to conclude that his memory of the circumstances, which led to his initial mistake on starting from Taunton, was unreliable and that his error must have been the outcome of failure to concentrate. The normal route for the train was *via* the main line, but his statement about seeing the signal leading to that line cleared is contradicted by the signalman whose evidence Colonel Mount accepts. It may be suggested that the initial misunderstanding was due to the bracketing out of the relief home signal with distant below; but this group of signals is distinct and well sited, admitting of no confusion with reasonably careful observation. Once Stacey had begun to think himself on the main line it is unlikely he would have realised his mistake until reaching Norton Fitzwarren relief distant signal. The main line signals being on the right of their line, would appear only a little further to his right than usual, which evidently did not arouse his suspicions.

With regard to Driver Stacey's statement that he did not receive a siren warning at that signal, but did do so at the Taunton West Junction distant, seen to have been lowered for him, it could only be assumed that in this respect also his memory was confused. It must have been at the Norton Fitzwarren distant that he cancelled the warning, and not on leaving Taunton platform, where the bell would have sounded, as it did for Silk Mill distant. All the A.T.C. apparatus was proved to be in proper order, and Stacey had been receiving its indications correctly throughout the journey. When Stacey realised his unfortunate mistake he had about 300 to 400 yds. to go (13 to 18 sec. at 45 m.p.h.), before reaching the catchpoints; he was obviously taken by surprise, too late to stop or materially to reduce speed. He did not hear the 3 detonators, 100 yds. further on, neither did the newspaper train driver nor the signalman, but the proprietor of a hotel close by stated that he clearly heard three distinct explosions, followed by the noise of the derailment. It seems doubtful whether there were in fact fresh detonators in the machine, but their explosion or otherwise was immaterial in this case. The necessity for conscientious attention to the replacement of such detonators needs no emphasis.

Remarks and Recommendations

Colonel Mount finds it difficult to understand the reasons for a lapse of this kind on the part of such an experienced driver, with a record of consistent reliability; but in spite of his knowledge of the road, the erroneous impression Stacey gained on leaving Taunton, and retained for more than 3 minutes, was apparently due in the first instance, to failure to interpret correctly a simple and well displayed group of four signal lights. Thereafter, the A.T.C. warning at the Norton Fitzwarren distant unfortunately did not have the desired effect, as it undoubtedly has in other cases (unrecorded) when accident has been prevented thereby. The issue is largely psychological; Driver Stacey was fit and did not lack rest; but his breakdown may be partly attributed to operating conditions in the blackout and to general strain. His house had recently been damaged in an air raid.

With regard to the suggestion that drivers should be specially advised when trains running out of course are diverted from their normal route, Colonel Mount points out that unexpected diversions on a four-track line are not uncommon at any time, and in present circumstances they may occur more often than usual. He does not think it either necessary, or practicable, as a general rule, to supplement the informa-

tion given by directing signals, which are provided for this very purpose.

Colonel Mount considered whether the right-hand drive—the G.W.R. practice—had any bearing on the driver's failure to observe the signals on his left, but found from inspection that their display was satisfactory, while the driver's evidence seemed to dispose of the possibility. The arrangement of the down main signals on the *right* of the line is one of the not uncommon exceptions to the general rule. Had they been in the usual *left* position, the driver would at least have had a better chance of realising his mistake in time; then their unaccustomed appearance to the *right* of the relief line might have served as a reminder. Similar mistakes have occurred in the past, even in daylight, and signals have been re-sited where their locations may have confirmed a driver's erroneous impression. The possibility of momentary confusion in darkness and bad weather is obviously greater. Any reasonably practicable steps should be taken to site signals where they enable drivers instinctively to verify the line on which they are travelling.

Standardisation in this respect is, Colonel Mount believes, insisted on abroad, and is fairly general in this country. He urges that every assistance should be given to placing signals accordingly, and not only where room can best be found. This point should receive closer attention in connection with new widenings. When opportunity occurs it would be well to review the position wherever there are parallel lines.

Short lengths of sand-covered track are recommended to be added to catchpoints where running lines converge. It is doubtful whether a drag of ordinary length would have prevented the partial derailment on this occasion, but retardation would presumably have been more gradual and the destructive effect after the sudden stoppage reduced.

RAILWAY AND OTHER MEETINGS

Assam-Bengal Railway Co. Ltd.

The ordinary general meeting of the Assam-Bengal Railway Co. Ltd. was held at 56, Victoria Street, London, S.W.1, on December 17, 1940. Mr. G. H. Ormerod (Chairman of the company) presided.

The Secretary, having read the notice convening the meeting and the auditors' report,

The Chairman, in moving the adoption of the report and accounts, said that in the year under review one had to take account of, and endeavour to appraise the effect of, 7 months of war and 5 months of preparation for war, of a strike for over a period of 4 to 5 months in the oil industry which gives the company its heaviest traffic, and of floods creating scarcity in areas served by the railway.

The net result of working in the carriage of goods was an increase of over 3 lakhs or 3 per cent. In the previous year the increase had been one of nearly 14 per cent. In coaching earnings the company had done better as there had been an increase of Rs. 4·04 lakhs or 5 per cent. following an increase of 5·09 lakhs or 6·7 per cent. on the previous year 1937-38. The maximum fare scheme showed an increase over the previous year of Rs. 1,21,890 or over 10 per cent.

Total gross earnings for the year amounted to Rs. 2,13,34,641, an increase on the previous year of Rs. 9,05,373 or 4 per cent., mainly due to the increase of 4 lakhs in passengers and 3 lakhs in freight from Burma rice traffic and jetty receipts.

Working expenses increased from Rs. 1,49,18,390 to Rs. 1,63,76,831, an increase of Rs. 14,58,441. In all the main items of ordinary expenditure there had been, as a percentage of earnings, a decrease. The total percentage was 59·65 compared with 61·41.

For some years past the company had been carrying out an extensive programme of relaying the track with heavier rails, and this work had been recently completed. Much of the work which should have been done last year had been thrown into the year under review, resulting in an expenditure of some Rs. 24½ lakhs, compared with Rs. 14 lakhs last year, and this accounted for the greater part of the increased expenditure.

The report and accounts were adopted.

Assam Railways & Trading Co. Ltd.

The ordinary general meeting of the Assam Railways & Trading Co. Ltd. was held on December 30, 1940, at 154-156, Fenchurch Street, E.C. Mr. E. A. A. Joseph, Chairman of the company, presided.

The Secretary having read the notice convening the meeting, and the auditors' report,

The Chairman, in moving the adoption of the report and accounts, said that the company's railway and general trading revenue did not differ sufficiently from last year to require any comment. The slight falling off of dividends was due partly to the sale of certain investments, but chiefly on account of the larger deductions for income tax.

On the other side of the accounts he had to explain the very large sum necessary to set aside as a provision for taxation in the United Kingdom in respect of Excess Profits Tax and income tax. The company was in the unfortunate position of finding itself with a poor pre-war standard, and consequently it looked as if the Excess Profits Tax might fall very heavily on it. The board proposed to appeal in the hope of getting a better standard, but as it was impossible to say what the result of that appeal would be, the directors felt that they had no option but to provide for the full possible liability. If later the company's appeal was successful, and they were relieved of some of that liability, the position would be reviewed. Again, income tax was an increasing demand, and the board thought it was not only wise but absolutely necessary to make provision accordingly. The figure debited had been discussed with the company's auditors, and that point alone was really a sufficient explanation of the result of the accounts this year and of the board's inability to recommend a dividend on the "A" stock.

There was also another factor in the minds of the board beside that debit of £35,000, when making that decision. That was the expectation that the accounts next year would not be very good. The railway was doing reasonably well, but the colliery costs, owing to various recent changes, would be substantially higher, and as Bengal coal prices had not altered, the board had no opportunity to recoup the company by increasing the price of the company's coal.

The company had had no labour difficulties during the year. In India, as elsewhere, such questions to some extent had been subordinated to the more urgent claims of the war machine.

It had become necessary in May, with the rise in the cost of living, to grant a dearness allowance, which was costing the company about a lakh and a half of rupees a year. Whatever, therefore, the decision might be on the question of excess profits tax, and it would very largely affect the accounts, the board was not looking for the current year to be as good as shown in the present accounts.

Then, again, as he had told stockholders a year earlier, the company was facing considerable expenditure on the betterment of labour conditions. Owing to the war, some of the improvements he had mentioned had not been able to be begun yet, but much had been and was being spent on improvements in housing. The new Workmen's Provident Fund and the system of paid holidays had come into operation at the beginning of April and were estimated to cost the company Rs. 51,000 this year.

As he had suggested at the last meeting was probable, the Government had not given notice of purchase of the company's railway in 1941, and the opportunity would not occur until 1951. The Government had, however, given notice of termination of the Assam-Bengal Railway contract from December 31, 1941. He did not, however, propose to discuss the possible implications of that.

The report and accounts were adopted.

Mr. E. A. A. Joseph, the director retiring by rotation was re-elected.

XUM

Parliamentary Notes

Railways Agreement (Powers) Bill

Lord Moyne (Joint Parliamentary Secretary to the Ministry of Agriculture), on December 17 in the House of Lords, moved the Second Reading of the Railways Agreement (Powers) Bill. He said that the Bill was necessary to enable the Government to settle agreements with the four major groups of railways, and with the London Passenger Transport Board. Control was assumed on the outbreak of war and had involved far-reaching agreements between the Government and the companies and between the four amalgamated companies and the London Passenger Transport Board. Command Paper No. 6168, which was presented last February, gave a broad outline of the system which was in operation under the Railway Control Order of 1939. Those matters would probably have been brought before the House in a Bill defining all the details, but modifications in the arrangement with the parties concerned, due to the introduction of the War Damages Bill, made it impossible to make provision at this stage by Act of Parliament for all the details which would require legislative sanction. This Bill therefore proceeded by authorising the Minister of Transport by Order to confer the necessary powers on the companies concerned to make agreements, and Clause 1 (4) provided that every Order so made should be laid before Parliament with power to either House to annul it within forty days.

The Second Reading was agreed.

The Bill passed through its remaining stages on December 18, and received the Royal Assent on December 19.

Questions in Parliament

Coal Traffic

Sir John Wardlaw-Milne (Kidderminster—C.), on December 17, asked the Minister of Transport whether he was aware that the serious coal shortage in Kidderminster and district was attributable to difficulties between the L.M.S.R. and the G.W.R.

Mr. F. Montague (Parliamentary Secretary to the Ministry of Transport): I have been advised by the Secretary for Mines that the stocks of some industrial undertakings in and around Kidderminster are low and arrangements have been made to run some special trains. The difficulties in regard to the exchange of coal and other freight traffic between the two companies are solely attributable to physical handicaps of a temporary character and these are being overcome as rapidly as possible.

Sir J. Wardlaw-Milne asked if it was that the difficulties arose owing to the understanding that there would be complete reciprocity in the exchange of wagons.

Mr. Montague said he could give figures showing that there was no such reciprocity in the exchange that takes place.

Mr. F. S. Cocks (Broxtowe—Lab.), on December 18, asked the Minister of Transport whether he was aware of the serious congestion of coal in Nottinghamshire owing to the difficulty of getting the coal away from the pits.

Lt.-Colonel Moore-Brabazon said that owing mainly to shortage of wagons held up at the receiving end, there was some difficulty in clearing coal from the Midland areas. Steps to relieve the situation were engaging his attention and that of the Secretary for Mines. Meanwhile there had been some improvement in the position.

Mr. Cocks asked if he was aware that the collieries were no longer informed directly by the Railway Control when the coal could be forwarded to a particular destination, with the result that the information often came too late to be operative?

Lt.-Colonel Moore-Brabazon: I will bear that point in mind.

Mr. F. C. Watkins (Hackney Central —Lab.): Are not these troubles caused mainly by the slowness in unloading wagons, and will the Minister do all he can to induce and, if necessary, compel merchants to unload wagons more rapidly?

Lt.-Colonel Moore-Brabazon: The whole question of trucks and demurrage is receiving very urgent attention, and I hope to be able to announce an agreement on that subject in the very near future.

Mr. F. S. Cocks also asked the Minister of Transport, on December 18, whether, in order to free the railway lines for the transport of coal and other heavy goods, he was considering a further reduction in the number of long-distance passenger trains, especially on Sundays; and whether, in cases where two important centres were connected by two or more railway systems, he would consider reserving one of those systems exclusively for goods.

Lt.-Colonel Moore-Brabazon: I am examining with the Railway Executive Committee how far it might be possible to provide means of transporting more coal and freight traffic by further reduction of passenger traffic,which has already been seriously interfered with and curtailed. It must not, however, be assumed that freight and passenger traffic is readily interchangeable.

Catering on Railways

Mr. A. Woodburn (Clackmannan and Eastern—Lab.), on December 11, asked the Minister of Transport whether he was willing to arrange with the railway restaurants or canteens for the quick supply on platforms, such as Crewe, Carlisle, Stirling, York, Newcastle, and Edinburgh, of 6d. meal packets for soldiers on long-distance trains.

Lt.-Colonel Moore-Brabazon (Minister of Transport): I am advised by the Railway Executive Committee that the railway companies do not think they would be able to supply for 6d. a meal packet which would be satisfactory. I propose to see, in consultation with the Secretary of State for War, whether the voluntary organisations with their lower overhead costs could undertake the provision of these packets.

Mr. A. M. Lyons (Leicester East—C.): Is it not a fact that the voluntary organisations are willing to give every assistance they can to the troops, while the railway companies are unwilling to give any assistance at all?

Lt.-Colonel Moore-Brabazon: No, Sir; that is far from true.

Sir Robert Gower (Gillingham—C.), on December 18, asked the Minister of Transport whether, in view of the inability of the railway companies to offer a meal to soldiers at 6d. a head, he would state exactly what food they were asked to provide for this amount; whether he was aware that sufficient satisfying food could be provided for this sum; and what steps he proposed to take to supersede the railway companies in the matter.

Lt.-Colonel Moore-Brabazon, in a written reply, stated: The railway companies were not asked to provide any specific types or quantities of food. They have advised me that it would not be possible for them to offer a satisfactory meal for the amount suggested. On the last part of the question I would refer to the answer which I gave on December 11 to the Member for Clackmannan and Eastern (Mr. Woodburn).

Burma and China Railway

Mr. L. M. S. Amery (Secretary of State for Burma) has sent a written reply to Mr. Robert Morgan (Stourbridge—C.), who on December 19 asked him whether, in view of its extreme importance to British trade, he would consult with the Burmese Government as to the desirability of preparing, at all events, the earthworks of the railway from Lashio to the Burmese frontier to join up with the Chinese railway to Yunnan.

Mr. Amery stated that his information was that, whereas the Chinese authorities had completed a survey up to the Burma frontier, actual construction in China was still some hundreds of miles short of the frontier. The construction required in Burma would not be merely of simple earthworks but would consist of over 100 miles of engineering work through mountainous country including a bridge of over 500-ft. span across the Salween River. The difficult questions involved in the problem of a railway connection between Burma and China were now under consideration.

Forthcoming Meetings

Jan. 16 (*Thurs.*)—**Bengal-Nagpur Railway Co. Ltd.** (Ordinary general), 132, Gresham House, Old Broad Street, E.C.2, at noon.

TRANSPORT SERVICES AND THE WAR—71

Christmas travel—Handling the Christmas mail—London's fire-bomb air raid—Probable temporary curtailment of passenger trains—Irish goods rates increased—German goods wagon user

The policy of the British railways concerning Christmas and New Year passenger traffic arrangements was succinctly stated in an official announcement of the Railway Executive Committee issued on December 18 to the effect that the Government's decision on holiday arrangements required the railways to use all their resources for the movement of traffic essential to the nation's war effort, and that there would therefore be no additional services or additional cheap travel facilities for Christmas and the New Year. The statement added that members of the public were advised in their own interest to make essential journeys only, and to travel as early in the day as possible. In furtherance of the Government's desire to curtail Christmas passenger traffic, Lt.-Colonel J. T. Moore-Brabazon, Minister of Transport, issued a Christmas message which was widely advertised in the national daily newspapers, and of which a reproduction appears below. Unofficial estimates indicate that Christmas passenger traffic was smaller than in normal peacetime years, but was nevertheless heavy. To a large extent this is accounted for by the fact that many persons were travelling to evacuation areas to visit evacuated children.

Some trains had to be run in duplicate or triplicate, and this resulted in a storm in a teacup, as some London newspapers interpreted such duplication as a contravention by the railway companies of the Minister of Transport's instructions. The response of the Railway Executive Committee was in the following terms: " Public response to the appeal of the Ministry of Transport to make this a ' stay-where-you-are ' Christmas was admirable, but large numbers travelled nevertheless. No additional services were run by the railways, but it became evident on Saturday last (December 21) that a very heavy traffic was to be expected. If the public were not to be left stranded at junctions and terminal stations it would be essential to run relief trains or to run popular trains in duplicate or triplicate. Such arrangements cannot be improvised. Staff must be advised and rolling stock must be earmarked beforehand, and this action was undertaken accordingly. The arrangements made by the railways were fully justified, and, in making these, consideration was given to passengers who were joining the relief trains *en route*. The main-line stations were cleared on Christmas Eve, and very few passengers were left behind."

Obviously the numbers of carriages composing a train are governed largely by the passenger traffic offering, and, when those numbers exceed the practical limit of one locomotive, and of platform lengths, ordinary railway operating practice results in duplicating the train. It is nevertheless the same train running in more than one part, and can scarcely be regarded as an additional service—a term which is normally applied to pre-advertised trains running at distinct times.

Railway Coal Depots Open on Boxing Day

The Mines Department pointed out to the coal trade on Christmas Eve that railway coal depots would be open as usual on Boxing Day, and expressed the hope that all merchants as far as possible would take full advantage of these facilities in order to assist in the clearance of wagons.

Ten Thousand " Specials "

Some 10,000 special trains have been run by the L.N.E.R. since the outbreak of war for the movement of troops and equipment. Nearly 8,000 of these trains have been for the conveyance of troops and the remainder for transporting guns, tanks, ammunition, and cylinders of gas for barrage balloons. Hundreds of horses and many thousands of motor cycles have also been dealt with.

More L.N.E.R. Travel Information Posts

The L.N.E.R. has now established more than 270 travel information posts at tradesmen's shops and air raid warden posts at key points in the London suburban areas served by King's Cross and Liverpool Street. The working of these T.I.P.s to give passengers the latest available information about local L.N.E.R. travel facilities to and from London, and thus enable them when necessary to take an alternative service without loss of time, was described at page 625 of our December 13 issue.

Sheltering in Underground Stations : Safety Code

On December 18 London Transport began the distribution of a leaflet containing the following safety code for shelterers in underground stations:—

1.—Keep away from platform edges. For your safety they have been painted white.

2.—When near a moving train—stand still.

3.—Don't stand in groups, particularly upon platforms.

4.—Keep your children under control. Don't allow them to play on escalators, lifts, and trains.

5.—Accidents have occurred through shelterers leaving their bedding, etc., at stations during the day. There is no room for storage of these things at tube stations. Neither can the public cloakrooms at the stations be used for the purpose. You must please see that your belongings are removed from the station premises promptly every morning.

6.—Please do your best to co-operate with the railway officials and wardens to ensure safety and comfort for all shelterers.

L.N.E.R. Buys Second Spitfire

Mr. C. H. Newton, Chief General Manager of the L.N.E.R., on December 28 sent to Lord Beaverbrook a New Year gift of £5,000 from all grades of the staff for the purchase of a Spitfire. This is the second fighter to be provided by the staff under their voluntary aircraft purchase scheme; the first

DIVERSION
Bomb damage holds up trains, takes you on roundabout routes, makes you late.
54,000 permanent-way men are doing a fighting front-line job—to repair damage quickly.
Your patience will assist them in their work.
Information services are being augmented at important stations, where details of alterations will be quickly available.
BRITISH RAILWAYS
A Christmas Message
"I WISH I could be a Santa Claus this Christmas and produce out of the bag hundreds of extra trains, miles of additional track and thousands of extra railway workers, so that you could travel where and as you wish—and in comfort.
"Instead, I have to curtail Christmas passenger trains and try to persuade you not to travel at all.
"You know this must be a stern Christmas-tide—one during which we must work for victory. The enemy won't wait while we take a Christmas holiday, and therefore Railways must continue to devote all their energies to vital war transport.
"No extra holidays for railway workers—for you no extra travelling facilities. Forgive no presents this year, but best wishes for Christmas and the New Year."
J. T. C. MOORE-BRABAZON, M.C., M.P.
Minister of Transport.
BRITISH RAILWAYS

New newspaper advertisements of the British railways

was presented last October, as recorded at page 441 of our October 25 issue.

Handling the Christmas Mails

The Postmaster-General, on December 25, issued a message of thanks to the public for the splendid response to his appeal to post much earlier this Christmas. He stated that the earlier posting had been of assistance to our war effort by easing the

London Transport Railways (including Metropolitan & G.C. Hammersmith & City and East London Joint Lines)

HALF-RATE SEASON TICKETS

FOR JUVENILE WORKERS UNDER 18 YEARS OF AGE

From 1st December 1940, half-rate season tickets will be issued to juvenile workers under 18 years of age receiving a gross income from all sources of not more than 25/- a week, instead of 18/- as heretofore

From the same date weekly half-rate tickets will also be issued

The tickets will be obtainable at station Ticket Offices on submission of a duly completed certificate form on any day including Sundays as follows:—

Weekly—Available from Sunday to the following Saturday inc. Weekly tickets are not issued on Saturdays before 12 noon or on Mondays before 10 a.m.

Monthly or longer periods—from any date

The certificate forms are obtainable at any station Ticket Office

For weekly tickets a certificate need be submitted only on the occasion of the first application in each calendar month. For monthly or longer period tickets a certificate must be submitted with each application

The issues are issued subject to the advertised conditions of the above Undertakings or to the issue of tickets

London Transport is efficient [illegible]

The London Transport poster announcement of half-rate season tickets for juvenile workers

burden on the railways. Soldiers had been lent to the Post Office for some of the heavier duties at the railway stations, and these returned to their depots on December 24, taking with them the 100 army lorries which had been helped to carry millions of parcels, packets, and letters to the railway stations. Over half a million parcel bags were sent to the London railway depots between December 16 and 23. At no time was there any undue accumulation of mail bags at any of the London stations, due largely to the aid given to the Post Office staff by the soldiers. The men thoroughly enjoyed the novelty of tackling an avalanche of bags and the Post Office sent thanks to the War Office for the timely assistance.

Southern Railway General Manager's Staff Message

The following message addressed "to all my Southern Railway colleagues" was sent by Mr. E. J. Missenden, General Manager of the Southern Railway, just before Christmas:—

The exchange of messages of good cheer and goodwill as between one another at this Christmastide of 1940 has a deeper meaning for us all. Most of us have had many anxieties and difficulties to contend with, and in sending a personal message to each one of you I want to tell you how much I and my brother officers of the company admire and appreciate the dogged, steadfast way in which the work of the Southern Railway has been carried on during the past year in face of unprecedented conditions.

1940 will never be forgotten by those of us of the Southern Railway who have lived and served through it; of that I feel sure. The collapse of France; the evacuation of the B.E.F. from Dunkerque; the subsequent strain which was thrown on to us, and the way in which it was surmounted—these things will remain in our memories always. The handling of the traffic of the returning armies was a feat which aroused the admiration of the whole nation, and we may all be proud to have had a hand in it. Then came the very real threat of invasion, and with it the extraordinary precautions, so greatly affecting this railway, which were taken in face of the gathering German armies on the other side of the Channel. Finally the *Blitzkrieg*, starting on our Kent and Sussex coasts, then creeping inland, culminating in the early days of September, in its full blast of destruction and attempted intimidation.

We can say without any fear of contradiction that never in the history of railways have railwaymen and women of every rank, grade, and classification, from the top to the bottom, had to carry on their work under such conditions. Much depended (and still does depend) on the men and women of the Southern Railway, continuously refusing to be intimidated, but instead carrying on their difficult duty undismayed in the face of the worst that Hitler and his Nazis can do. The Minister of Transport, Lt.-Colonel J. T. C. Moore-Brabazon, in a recent speech said: "The second battle of Waterloo concerned not armies but railways, and the Southern Railway had achieved as big a victory as ever had been seen."

We have all learnt many things in the course of the last few months: different ways of doing things, willingness to accept responsibility suddenly thrust on unaccustomed shoulders; grievous strain, long hours and even personal sorrows have had to be borne. Borne they have been, and most cheerfully, and in sending you once more my best wishes for Christmas and throughout the New Year I do so with every sincerity, because I know how splendidly it has been earned. The holiday this year will be short and sweet: so be it. British railwaymen and women, no less than the British public whom they serve, have proved that "they can take it." Now we are rejoicing in the knowledge that our boys, both here and overseas, and in all the fighting Services can "give it" too. So with renewed strength we shall continue our task on the Southern Railway until Hitler and his legions are no more. May good fortune attend you, and God bless you all.

London's Fire-Bomb Air Raid

The German air raid on London during the night of December 29 and the widespread fires which were caused, more especially around the City boundaries, as a result of the indiscriminate dropping of incendiary bombs provided an especial problem for the London Passenger Transport Board on the next day. At short notice the officers of the board had to improvise traffic arrangements in order to cope with difficulties presented by closed streets. No fewer than 750 buses were used on special services, the majority to provide links with railway stations of the main-line companies and the board. This number is one of the largest which has been put into effect by the board on any one day under its scheme of an emergency bus pool to which previous reference has been made in THE RAILWAY GAZETTE. On a number of the board's normal bus services it was necessary to arrange temporary turning points and, as was only to be expected, it proved impossible to avoid a certain amount of queuing on the part of passengers. On the whole the system which was brought into force with very little notice resulted in delays being kept to a minimum, and those in close touch with the traffic problems both in London and the country generally have expressed their gratification at the resourcefulness of the board and the success which attended its efforts to deal with a sudden major traffic emergency. By Tuesday, December 31, some improvements had been effected on the previous day's working.

Passenger Services may be Curtailed

The Ministry of Transport announced on December 31 that heavy movements of coal which are required at this time of the year, combined with the greatly increased freight traffic upon the railways as a result of the nation's war effort, may make it necessary to effect some temporary reductions in certain passenger services in London and in the provinces.

North Woolwich Train Services

On January 1 the L.N.E.R. Palace Gates—Custom House train service was extended to North Woolwich, and the local Stratford—North Woolwich services reinstated.

Goods Rate Increases in Ireland

Due to wartime emergency, the following railways have given notice that the present emergency surcharge of 15 per cent. will be increased, as from January 1, to approximately 25 per cent. in respect of rates for goods and minerals: the County Donegal Railways Joint Committee; Dundalk, Newry & Greenore Railway; Great Northern Railway (Ireland); Londonderry & Lough Swilly Railway; Sligo, Leitrim & Northern Counties Railway, and Strabane & Letterkenny Railway. It has also been found necessary to revise certain rates for the conveyance of specific traffics (other than passengers) by passenger train services. The companies make it clear that this revision of rates is necessary in consequence of the advance in operating costs due to the emergency.

Goods Wagon User in Germany

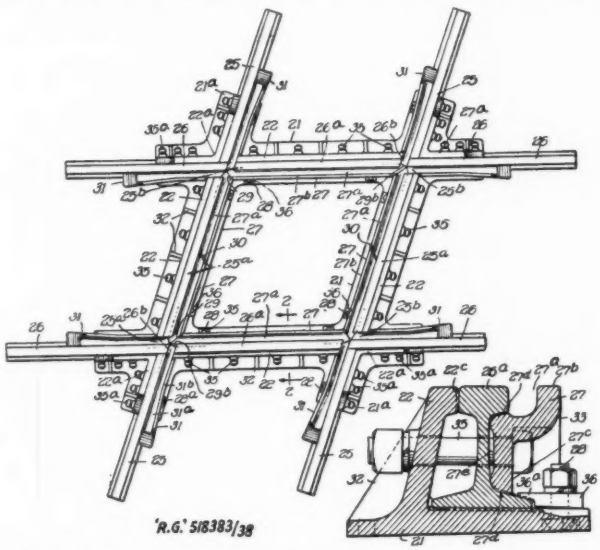
During the Christmas and the New Year season exception was made by the German Ministry of Transport to the rigid rules about loading and unloading goods wagons. Unloading was excused on Christmas Day and New Year's Day, and on Christmas Eve and New Year's Eve loading was permitted to cease at 1 p.m. At the same time a broadcast reminder was issued by the Ministry of Transport that the ordinary time limit for the handling of wagons, fixed by the Ministry of Economics and the Ministry of Labour, still remains in force, and users were urged not to delay the circulation of wagons by slow loading and unloading. All receivers of wagons must keep to the rigid limits imposed, including full work on Sundays and holidays.

ABSTRACTS OF RECENT PATENTS*

No. 518,383. Crossings

James Henry Asselin, of 4710, Division Street, Chicago, State of Illinois, United States of America. (*Application date: August 23, 1938.*)

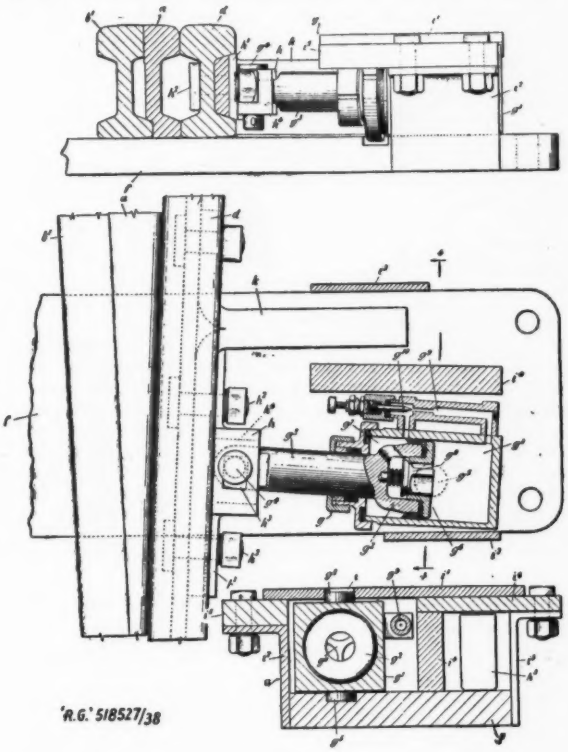
A crossing consists of a one-piece base frame comprising a base 21 and walls 22, interrupted at 22*b* to a width equal to one rail head plus a wheel-flange groove, outer crossing rails 25, 26 suitably spaced from corresponding inner rails 25*a*, 26*a*, inner walls 27 secured to base 21 by bolts 28 and to inner rails and walls 22 by bolts 35, and wheel-flange guides 31 secured to the outer rails by bolts 35*a* and to base 21 by bolts 28*a*. The guides 31 have flange grooves 31*a* and guards 31*b*. The outer walls 22 are buttressed at 32 and the inner walls are buttressed at 33. The bolts 28 act on the base 21 through clamps 36. The inner walls 27 provide a flange groove 27*a* and guard 27*b* and an upright portion 27*e* bevelled at 27*d*. Several other forms of the invention are described and illustrated.—(*Accepted February 26, 1940.*)



No. 518,527. Spring Crossings

The Southern Railway Company, of Waterloo Station, London, S.E.1, Sydney Lionel Furnivall, of "Kingswood," Edenfield Gardens, Worcester Park, Surrey, and Thomas Henry Haslett, of "The Chestnuts," Redbridge, Southampton. (*Application date: August 24, 1938.*)

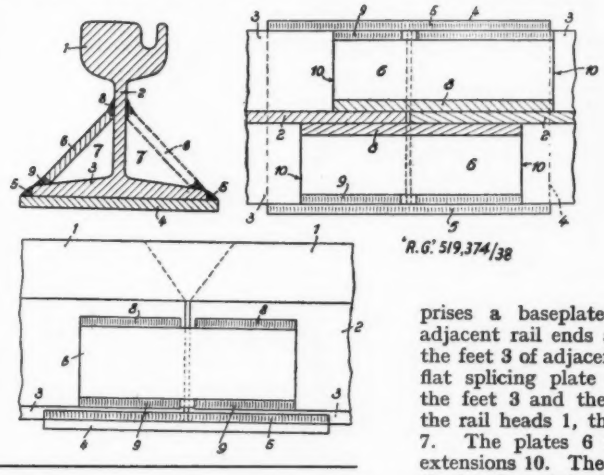
In a crossing *a* is the splice rail merging into point rail *b*, and *d* is the spring rail mounted to slide laterally towards and away from the splice, the point and the wing rails. Rail *d* is normally held closed by a spring, and its return to position is retarded by mechanism *g* comprising a cylinder g^1 containing a piston g^2 with rod g^3, pivotally attached by pin g^4 in slot h^3 to an extension *h* of a bracket h^1, which is secured to the rail *d* by the bolts h^2 which secure the pinion bar *k*. The cylinder has trunnions g^5, received in recesses *i* in chair *F* and in plate i^1, supported by supports i^2, i^3, i^4 and spaced by pieces i^5, i^6, i^7, and contains oil which is free to pass from space g^6 to space g^7 by non-return valve g^8 in the piston. Oil can only return to the space g^6 through needle valve g^{10} and passage g^9.—(*Accepted February 29, 1940.*)



No. 519,374. Rail Bonds

Johann Friedrich Schneider, of Tegelerstrasse 6-7, Berlin, N.W.65, Germany. (*Application date: September 21, 1938.*)

Fig. 1 is a sectional end elevation, Fig. 2 is a side elevation, and Fig. 3 is a sectional plan. The rail bond comprises a baseplate 4 which overlaps adjacent rail ends and is placed below the feet 3 of adjacent rails. An inclined flat splicing plate 6 extends between the feet 3 and the webs 2 just below the rail heads 1, thus forming a tunnel 7. The plates 6 may have inturned extensions 10. The various members of the bond are joined together and to the adjacent rails by welds 5, 8, and 9. Three modifications are described and illustrated. — (*Accepted March 26, 1940.*)



* These abridgments of recently published specifications are specially compiled for THE RAILWAY GAZETTE by permission of the Controller of His Majesty's Stationery Office. Group abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, either sheet by sheet as issued, on payment of a subscription of 5s. a group volume, or in bound volumes, price 2s. each, and the full specifications can be obtained from the same address price 1s. each.

Notes and News

Halifax (Old) Booking Office.—The L.N.E.R. booking office at Halifax (Old) station was closed on January 1, and the work transferred to the L.M.S.R. office.

National Safety First Association.—The National Safety First Association is to consider changing its title to the Royal Society for the Prevention of Accidents. A special meeting is to be held on January 8 to consider the proposal.

Great Western of Brazil Railway Co. Ltd.—At the adjourned meetings of holders of the permanent 6 per cent. debenture stock and the 4 per cent. debentures held on December 19, extraordinary resolutions approving the scheme of arrangement extending the moratorium period until December 31, 1941, and if necessary, for the two subsequent years, were unanimously passed.

Bushire-Shiraz Railway.—A Reuter's message, dated December 28, from Teheran, states that the Government of Iran has decided to construct a line of railway to connect the important city of Shiraz (population 120,000) with the port of Bushire on the Persian Gulf. Shiraz is the centre of one of the best known carpet-making and wine industries in Iran, but it is situated on the Iranian plateau and is 5,100 ft. above sea level. Moreover, it is approached by a road from Bushire, 156 miles in length, which has to negotiate the great mountain barrier between the plateau and the coast, and climbs to cross it at a pass 7,400 ft. in altitude. Any railway from Bushire to Shiraz would, therefore, be very difficult to construct and would be bound to have heavy gradients. Even so, it would probably be considerably longer than the road.

North Western of Uruguay Railway Co. Ltd.—At the adjourned meetings of the holders of the 6 per cent. first and second debenture stocks held on December 17, the moratorium schemes were approved. The new period, during which the payment of interest is postponed, is to December 31, 1941, with power to a committee to extend it, if necessary, for further periods to December 31, 1942, and December 31, 1943. A similar scheme for the 5 per cent. debenture stock of the Quarahim International Bridge Co. Ltd. was approved at a meeting of stockholders held on November 26.

Increases in Railway Charges.—On Friday, December 20, the Minister of Transport, accompanied by Mr. Fred Montague, Parliamentary Secretary, and officials of the Ministry, met a deputation from the London Workers War Vigilance Committee, representing the London Trades Council, the London Labour Party, and the London Co-operative Societies. The deputation, which was led by Mr. Lewis Silkin, M.P., and Mr. Harold Clay, expressed their views about the financial arrangements between the Government and the railway companies, and urged that any further increases in charges would have very serious effects, particularly on passengers who have to travel to and from their work in the London area. The Minister thanked the deputation for putting their views so fully and frankly before him, and promised that the matters raised would have consideration.

Irish Traffic Returns

IRELAND		Totals for 50th Week				Totals to Date			
		1940	1939	Inc. or Dec.		1940	1939	Inc. or Dec.	
		£	£		£	£	£		£
Belfast & C.D. (80 miles)	pass.	2,449	1,915	+	534	161,067	128,856	+	32,211
	goods	1,129	658	+	471	33,573	24,250	+	9,323
	total	3,578	2,573	+	1,005	194,640	153,106	+	41,534
Great Northern (543 miles)	pass.	11,600	8,750	+	2,850	610,950	559,450	+	51,500
	goods	16,000	13,850	+	2,150	678,750	564,450	+	114,300
	total	27,600	22,600	+	5,000	1,289,700	1,123,900	+	165,800
Great Southern (2,076 miles)	pass.	31,072	31,818	−	746	1,755,029	1,827,739	−	72,710
	goods	66,361	55,171	+	11,190	2,463,303	2,318,106	+	145,197
	total	97,433	86,989	+	10,444	4,218,332	4,145,845	+	72,487
L.M.S.R. (N.C.C.) (247 miles)	pass.	6,760	4,230	+	2,530	287,230	234,190	+	53,040
	goods	6,170	3,550	+	2,620	218,250	154,710	+	63,540
	total	12,930	7,780	+	5,150	505,480	388,900	+	116,580

IRELAND		Totals for 51st Week				Totals to Date			
		1940	1939	Inc. or Dec.		1940	1939	Inc. or Dec.	
		£	£		£	£	£		£
Belfast & C.D. (80 miles)	pass.	2,762	2,178	+	584	163,829	131,034	+	32,795
	goods	813	585	+	228	34,386	24,835	+	9,551
	total	3,575	2,763	+	812	198,215	155,869	+	42,346
Great Northern (543 miles)	pass.	11,550	12,900	−	1,350	622,500	572,350	+	50,150
	goods	16,300	13,200	+	3,100	695,050	577,650	+	117,400
	total	27,850	26,100	+	1,750	1,317,550	1,150,000	+	167,550
Great Southern (2,076 miles)	pass.	37,004	44,500	−	7,496	1,792,033	1,872,239	−	80,206
	goods	70,369	55,538	+	14,831	2,533,672	2,373,644	+	160,028
	total	107,373	100,038	+	7,335	4,325,705	4,245,883	+	79,822
L.M.S.R. (N.C.C.) (247 miles)	pass.	7,760	6,660	+	1,100	294,990	240,850	+	54,140
	goods	5,720	3,520	+	2,200	223,970	158,230	+	65,740
	total	13,480	10,180	+	3,300	518,960	399,080	+	119,880

British and Irish Railway Stocks and Shares

Stocks	Highest 1939	Lowest 1939	Prices Dec. 31, 1940	Prices Rise/Fall
G.W.R.				
Cons. Ord.	38	21½	32½	−½
5% Con. Pref. ...	92	71	84	—
5% Red. Pref. (1950)	98	83	97½	+4
4% Deb.	103	91	105*	+½
4½% Deb.	105½	93½	108*	+4½
4½% Deb.	110	99	113½*	+5
5% Deb.	121	109½	121*	+2½
2½% Deb.	63½	54	61*	−1
5% Rt. Charge ...	117	104	114½*	+4
5% Cons. Guar. ...	111	96½	112	—
L.M.S.R.				
Ord.	17	9½	13½	−½
4% Pref. (1923) ...	46½	20	37½	+½
4% Pref.	63½	37½	51½	—
5% Red. Pref. (1955)	83	58½	76½	+3
4% Deb.	98½	85	99½	+2½
5% Red. Deb. (1952)	109	101½	107	+1
4% Guar.	87⅞	73	85	+1
L.N.E.R.				
5% Pref. Ord. ...	5¾	3½	3	+⅛
Def. Ord.	3½	1⅜	1⅝	+⅛
4% First Pref. ...	38½	19	33½	—
4% Second Pref. ...	15	7⅜	11	+½
5% Red. Pref. (1955)	55	38	50	—
4% First Guar. ...	78½	60	75	+1½
4% Second Guar. ...	68⅝	47	61	—
3% Deb.	71⅛	57	68½	+½
4% Deb.	93	76	92	+9
5% Red. Deb. (1947)	106½	98	103	+1
4½% Sinking Fund Red. Deb.	104½	96	99½	−1
SOUTHERN				
Pref. Ord.	78	46½	45½	—
Def. Ord.	19½	7	10½	—
5% Pref.	100	76	82½	+½
5% Red. Pref. (1964)	102⅞	94	88½	+1
5% Guar. Pref. ...	116½	103	112	+½
5% Red. Guar. Pref. (1957)	112½	102½	108½	+6
4% Deb.	103	91½	104½	+2½
5% Deb.	118½	109½	119½	+9
4% Red. Deb. (1962–67)	106	98	100½	−1
4% Red. Deb. (1970–80)	102	96	101½	−6
FORTH BRIDGE				
4% Deb.	98½	81	87½	—
4% Guar.	95	80	84½	—
L.P.T.B.				
4½% "A"	115	103	109	+½
5% "A"	123	106½	115	−1
4½% "T.F.A." ...	105	100½	102½	−½
5% "B"	117½	102	104	+1
"C"	84	63⅜	33	+½
MERSEY				
Ord.	24½	17½	21½	+1
4% Perp. Deb. ...	93⅜	88½	91½	+2½
3% Perp. Deb. ...	77	65½	60	+½
3% Perp. Pref. ...	55	49½	54½	—
IRELAND				
BELFAST & C.D.				
Ord.	6	3	4	—
G. NORTHERN				
Ord.	6	2½	3	—
G. SOUTHERN				
Ord.	13½	8	5	—
Pref.	26	10	12½	−½
Guar.	40½	22	16½	—
Deb	57	45⅜	41	−1

* ex dividend

PARLIAMENTARY NOTICES

IN PARLIAMENT.

Session 1940-41.

Great Western Railway (Superannuation Fund)

NOTICE IS HEREBY GIVEN that application has been made to Parliament in the present Session by the Great Western Railway Company (hereinafter referred to as " the Company ") for an Act for purposes of which the following is a concise summary :—

1. To authorise the establishment of a Superannuation Fund (hereinafter referred to as " the Fund ") for certain members of the salaried staff of the Company and to repeal the Great Western Railway (Superannuation Scheme) Act, 1908.

2. To provide that the rules and regulations set out in the Schedule to the Bill or the intended Act shall be the rules and regulations of the Fund.

3. To prescribe the members of the Staff of the Company who shall or may become members of the Fund and the contributions to be made by such members and the Company.

4. To close the Great Western Railway Superannuation Scheme established by the Great Western Railway (Superannuation Scheme) Act, 1908, and to transfer to the Fund the assets and liabilities of that Scheme.

5. To provide as to the application of the moneys of the Fund and the guarantee by the Company of the solvency of the Fund.

6. To enable membership of the Fund to be extended to salaried members of other pension funds and Societies established for the benefit of certain of the staff of the Company on such terms as may be agreed between the Company the Committee of the Fund and the members of such other funds or Societies and for the ultimate closing of such funds and the determination of any trusts constituted in connection therewith.

7. To provide that notwithstanding anything in the Railways Act, 1921, or any scheme relating to the Company made thereunder no officer or servant of the Company shall be entitled to claim or to be paid compensation for any pecuniary loss he may suffer by the operation of the provisions of the intended Act in relation to his rights or liabilities as respects superannuation, pension or other similar benefits.

On and after the 4th day of December, 1940, a printed copy of the Bill for the intended Act may be inspected and copies thereof obtained at the price of four shillings for each copy at the office of the Superintendent of the Line, Great Western Railway Company, Paddington Station, London, W.2.

Dated this 4th day of December, 1940.

C. H. WHITELEGGE,
Paddington Station,
W.2.
Solicitor and Parliamentary Agent.

IN PARLIAMENT.

Session 1940-41.

Great Western Railway (Variation of Directors' Qualification)

NOTICE IS HEREBY GIVEN that application has been made to Parliament in the present Session by the Great Western Railway Company (hereinafter referred to as " the Company ") for an Act for purposes of which the following is a concise summary :—

To provide that notwithstanding anything contained in the Act 5 and 6 William IV cap. cvii or in the Companies Clauses Consolidation Act, 1845, no person shall be disqualified from being a director of the Company by reason of his holding or continuing to hold any office or place of trust or profit under the Company nor shall any director be required to cease from voting or acting as a director by reason of his accepting or continuing to hold any such office or place of trust or profit.

On and after the 4th day of December, 1940, a printed copy of the Bill for the intended Act may be inspected and copies thereof obtained at the price of two shillings for each copy at the office of the Superintendent of the Line, Great Western Railway Company, Paddington Station, London, W.2.

Dated this 4th day of December, 1940.

C. H. WHITELEGGE,
Paddington Station,
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STAFF AND LABOUR MATTERS

Compensation for War Injuries

The Chancellor of the Exchequer (Sir Kingsley Wood) announced in the House of Commons on December 18 that the Government had decided to extend the provisions of the Personal Injuries (Civilians) Scheme under which compensation is paid to civilians who are injured or killed as a result of enemy action. Sir Kingsley Wood stated that the disablement provisions of that scheme would be extended to include the whole adult population, and not only those who were members of civil defence organisations or were gainfully occupied. The Government would also increase the injury allowances (payments for temporary incapacity) under the scheme for all classes of gainfully occupied persons and unpaid civil defence volunteers injured on duty so as to make them comparable with the maximum amount of compensation payable under the Workmen's Compensation Act. The injury allowances at present payable to civil defence volunteers and gainfully occupied persons would therefore be increased to the following weekly rates :—

	Not in hospital	In hospital
Married men	35s.	35s.
Single men	35s.	24s. 6d.
Women	28s.	17s. 6d.

The Minister of Pensions would have discretion to pay the higher rate to a single man or woman in hospital if he or she had been regularly maintaining a home for wholly dependent relatives. The following weekly rates payable to persons not gainfully occupied :—

	Not in hospital	In hospital
Married men	21s.	10s. 6d.
Single men	21s.	10s. 6d.
Women	14s.	7s.

Pensions would be payable to persons of that class in respect of serious and prolonged disablement at rates similarly proportioned to the pensions of gainfully occupied persons.

In addition, the Government felt that special consideration was required for a widow in view of the immediate cessation of her husband's earnings and that provision should be made for the widow of a civilian worker or of a civil defence volunteer comparable to the provision for a widow of a serving soldier. They had, therefore, decided that such a widow should be paid an inclusive allowance (where more favourable) of 50s. a week for the first 10 weeks following her husband's death if he was killed by war injury or war service injury or died while receiving Injury Allowance in respect of such injury. This provision would apply to the widow of an unpaid civil defence volunteer killed on duty even though he was not gainfully occupied.

Furthermore, it had been decided that the funeral grant of £7 10s. now paid for the privately-arranged funeral of a civil defence volunteer should be extended to the widow of a civilian worker. The Minister of Pensions would have discretion to pay the funeral grant in respect of a single man or woman to a wholly dependent relative for whom a home had been regularly maintained.

The new rates became payable on and after Tuesday, December 24.

Contracts and Tenders

A contract for the steel frame for the new boiler house and bunkers at Newport " A " power station at £17,531, has been placed with Johns & Waygood Limited by the Victorian Railways Department.

The Brazilian Ministry of Transport has ordered 13 Mikado 2-8-2 steam locomotives from the American Locomotive Company, and 10 Mikados and three 2-6-6-2 Mallets from the Baldwin Locomotive Works.

The contract for the electrification of the San-Paulo—Santo Antonio section of the metre-gauge Sorocabana Railway was signed on October 12 between the Electrical Export Corporation (U.S.A.), Cobrazil, and the San Paulo State. The contract involves a sum of 185,000 contos of reis, completion of the San Paulo-Sorocabana section in two years and of the Sorocabana-Santo Antonio section in three years. The scheme is being financed by the Export & Import Bank, of Washington, with repayment in 10 years and interim interest charges at 4½ per cent.

Tangyes Limited is now occupying temporary London premises at 28, Budge Row, E.C.4, phone : City 4324.

The Dunlop Rubber Co. Ltd. has opened new premises in Bristol and the West Region at Cart Lane, Victoria Street, Bristol 1, and a delivery warehouse at the Express Garage, Tangier, Taunton. A despatch service is also being given from 3, Liverpool Place, Cheltenham.

Railway Stock Market

Owing to the usual January 1 Stock Exchange holiday and the heavy air raid on the City, business in the stock and share markets has been at a low ebb. Nevertheless, under the lead of British Funds, which were stimulated by the terms of the two new Government loans, the general tendency has been to better prices, and very little selling was reported. There was not a great deal of business passing in home railway securities, due to the general market tendency, and to the disposition to await the special proposals in regard to war damage which are to apply to railways and other public utility undertakings. Rather better demand has been reported this week for debentures of the main-line railways, which still offer attractive yields, when compared with other high-grade investment stocks, and can reasonably be expected to respond in price if there is an upward trend in gilt-edged securities. Bearing in mind the good cover for interest requirements, L.M.S.R. 4 per cent. debentures, and L.N.E.R. 3 per cent. and 4 per cent. debentures would appear to be relatively undervalued.

Although home railway stocks have finished 1940 well below the highest levels recorded in the past twelve months, they are considerably above the lowest prices touched in the year. Great Western ordinary, whose dividend is generally estimated at 3 per cent., is now 32¾; highest and lowest for 1940 were 52 and 22½ respectively. Great Western 5 per cent. preference, now 84½, had extremes of 103½ and 58 last year. L.M.S.R. ordinary's highest and lowest prices last year were 24⅞ and 9, which compare with the current price of 13½. During 1940, L.M.S.R. senior preference had highest and lowest of 70¾ and 35, and is now 51, while the 1923 preference, whose present price is 37, had extremes of 60½ and 21⅝ last year. Current expectations are that 1 per cent. is likely to be paid on L.M.S.R. ordinary, and a similar payment may be made on Southern deferred and also on L.N.E.R. second preference. All points considered, it would seem that the two last-named stocks are undervalued in relation to L.M.S.R. ordinary.

Southern deferred has been steady at 10⅜; the 1940 highest and lowest were 22½ and 7. Southern preferred fluctuated between 79 and 34 last year, which compare with the current price of 46, on which basis a substantial and unduly large yield is offered; it is, of course, generally believed that the full 5 per cent. dividend will be paid on this stock. Southern preference has remained firm at 83; the 1940 extremes were 104½ and 58¾. As regards L.N.E.R. issues, the first preference was unchanged on balance for the week at 33½; the 1940 highest was 60, and the lowest 20. The second preference, now 10¾, had 1940 extremes of 22½ and 7. L.N.E.R. first guaranteed's extreme prices last year were 86¼ and 56, while the current level is 75. The extremes for the second guaranteed were 77½ and 37, and this stock is now 60. These guaranteed stocks offer generous yields, and the fact that they are cumulative as to dividend naturally adds to their investment merits. London Transport stocks have had a firmer appearance this week in response to the general tendency in high-class investment securities; the 4½ per cent. "A" stock gained a point to 109½. Argentine railway issues were dull in the absence of demand, and fractional declines were shown in Central Argentine 6 per cent. preference and Argentine Great Western 5 per cent. debentures. Elsewhere, Canadian Pacifics were less active.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1939-40	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1932	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1939	Prices: Lowest 1939	Prices: Dec. 31, 1940	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	22.12.40	17,540	– 6,250	51	879,270	726,980	+ 152,290	Ord. Stk.	10⅜	4½	5	Nil
	Argentine North Eastern	753	21.12.40	ps. 123,700	– ps.19,500	25	ps. 4,034,000	ps. 4,134,900	– ps.100,900	,,	4½	2	2	Nil
	Bolivar	174	Nov. 1940	3,350	– 1,330	48	42,500	47,530	– 5,030	6 p.c. Deb.	7½	5½	6½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	5½	4½	6*	Nil
	Buenos Ayres & Pacific	2,801	14.12.40	ps.1,332,000	– ps. 8,000	24	ps.27,602,000	ps.29,444,000	– ps.1,842,000	Ord. Stk.	5½	2	2	Nil
	Buenos Aires Central	190	2.11.40	$82,900	– $12,100	18	$1,701,400†	$2,029,600	– $328,200	—	—	—	—	—
	Buenos Ayres Great Southern	5,082	14.12.40	ps.2,137,000	– ps.311,000	24	ps.46,309,000	ps. 48,635,000	– ps.2,326,000	Ord. Stk.	13⅜	4½	5	Nil
	Buenos Ayres Western	1,930	14.12.40	ps. 831,000	– ps. 41,000	24	ps.16,113,000	ps. 17,565,000	– ps.1,452,000	,,	10¼	4	3⅜	Nil
	Central Argentine	3,700	14.12.40	ps.1,396,900	– ps.171,750	24	ps.33,319,500	ps. 44,792,400	– ps11,472,900	,,	11½	4	3	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4	1½	1½	Nil
	Cent. Uruguay of M. Video	972	14.12.40	20,592	– 4,194	24	483,604	447,910	+ 35,694	Ord. Stk.	2⅜	7/8	1½	Nil
	Costa Rica	188	May 1940	17,282	– 7,020	48	193,339	245,516	– 52,177	Stk.	24½	18	16½	12½
	Dorada	70	Nov. 1940	11,800	– 1,900	48	134,200	150,400	– 16,200	1 Mt. Db.	104½	102	98	6 7/8
	Entre Rios	810	21.12.40	ps. 205,000	– ps. 44,700	25	ps. 5,606,800	ps. 6,335,500	– ps. 728,700	Ord. Stk.	6	3	1½	Nil
	Great Western of Brazil	1,016	21.12.40	15,500	—	51	545,200	469,400	+ 75,800	Ord. Sh.	3/-	1/2½	7/8	Nil
	International of Cl. Amer.	794	Sept. 1940	$325,789	– $37,196	39	$4,405,419	$4,486,381	+ $80,962	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	7½d.	7½d.	¼	Nil
	La Guaira & Caracas	22¾	Nov. 1940	5,405	– 1,650	48	72,500	67,780	+ 4,720	—	—	—	—	—
	Leopoldina	1,918	19.10.40	27,288	+ 3,141	42	961,659	868,452	+ 93,207	Ord. Stk.	2½	¾	¾	Nil
	Mexican	483	7.10.40	ps. 270,900	– ps. 300	14	ps. 3,816,500	ps. 3,954,000	– ps. 137,500	,,	1⅜	¼	¼	Nil
	Midland of Uruguay	319	Oct. 1940	12,058	+ 3,732	17	45,052	34,464	+ 10,588	—	—	—	—	—
	Nitrate	386	15.12.40	6,840	– 1,866	50	167,046	119,126	+ 47,920	Ord. Sh.	2¼	1¼	1⅜	7 1/11
	Paraguay Central	274	21.12.40	$3,215,000	– $56,000	25	$84,693,000	$82,384,000	+ $2,309,000	Pr. Li. Stk.	45½	36	36½	16 1/11
	Peruvian Corporation	1,059	Nov. 1940	63,144	+ 1,349	22	328,469	316,494	+ 11,975	Pref.	1 1/16	1/16	1/16	Nil
	Salvador	100	2.11.40	£7,687	– £925	18	£158,338	£174,282	– £15,944	—	—	—	—	—
	San Paulo	153¼	22.12.40	32,500	– 4 042	51	1,839,716	1,671,429	+ 168,287	Ord. Stk.	38	20	27½	9 1/16
	Taltal	160	Oct. 1940	2,595	– 765	17	9,320	7,785	+ 1,535	Ord. Sh.	⅝	6/6	½	9¼
	United of Havana	1,353	21.12.40	14,728	– 4.703	25	370,061	431,291	– 61,230	Ord. Stk.	2	½	½	Nil
	Uruguay Northern	73	Oct. 1940	1,271	+ 301	17	4,159	3,654	+ 505	—	—	—	—	—
Canada	Canadian National	23,695	14.12.40	1,069,944	+ 211,873	50	46,845,393	38,737,477	+ 8,107,916	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	– 4 p.c.	Perp. Dbs.	74¾	60	85	4 1/11
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	100¼	76	103	3¾
	Canadian Pacific	17,153	21.12.40	792,400	+ 184,200	51	33,197,200	29,408,200	+ 3,789,000	Ord. Stk.	7⅜	3½	5½*	Nil
Indian	Assam Bengal	1,329	30.4.40	45,187	+ 6,529	4	135,060	120,437	+ 14,623	Ord. Stk.	76½	60	97½	3 1/16
	Barsi Light	202	31.10.40	4,245	+ 1,680	29	86,265	56,930	+ 19,335	—	—	—	—	—
	Bengal & North Western	2,091	Nov. 1940	258,900	+ 38,081	10	494,325	421,197	+ 73,128	Ord. Stk.	277	229½	255	6 1/16
	Bengal Dooars & Extension	161	Sept. 1940	14,625	+ 508	26	78,405	66,243	+ 12,162	,,	91	84½	225	5½
	Bengal-Nagpur	3,269	31.10.40	258,450	+ 51,860	29	4,963,715	4,495,671	+ 468,044	,,	94¾	83½	96½	4½
	Bombay, Baroda & Cl. India	2,986	20.12.40	298,500	– 4,200	38	6,989,775	6,343,425	+ 646,350	,,	108	90	107½	5 7/16
	Madras & Southern Mahratta	2,967	31.10.40	172,125	+ 39,401	29	3,454,839	3,299,312	+ 155,527	,,	104½	92	101½	7⅜
	Rohilkund & Kumaon	571	Nov. 1940	46,125	+ 2,363	10	89,625	81,517	+ 8,108	,,	280	263	250½	6⅜
	South Indian	2,542	10.10.40	128,641	+ 26,546	27	2,425,715	2,204,757	+ 220,958	,,	102½	88	84½	5 1/16
Various	Beira	204	Sept. 1940	73,186	—	52	905,968	—	—	—	—	—	—	—
	Egyptian Delta	623	30.9.40	7,602	+ 1,784	26	89,819	94,881	– 5,062	Prf. Sh.	½	½	½	Nil
	Kenya & Uganda	1,625	—	—	—	—	—	—	—	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	55	39	46½	7½
	Midland of W. Australia	277	July 1940	11,397	+ 139	4	11,397	11,258	+ 139	Inc. Deb.	91½	87½	82½	4⅝
	Nigerian	1,900	31.8.40	27,727	+ 3,258	22	783,893	601,488	+ 182,405	—	—	—	—	—
	Rhodesia	2,442	Sept. 1940	482,182	—	52	4,910,860	—	—	—	—	—	—	—
	South Africa	13,287	16.11.40	698,827	+ 44,922	33	22,480,004	21,297,694	+ 1,182,310	—	—	—	—	—
	Victoria	4,774	Aug. 1940	888,289	+ 190,022	9	1,756,717	1,383,157	+ 373,560	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of 1/16. Argentine traffics are now given in pesos
* Quotation is of June 17, 1940; dealings subsequently prohibited † Receipts are calculated @ 1s. 6d. to the rupee